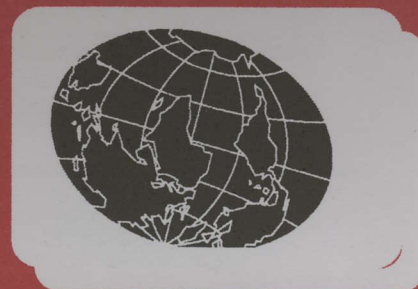


Bob Cooper's

NOVEMBER 15 2005

SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

IN THIS ISSUE

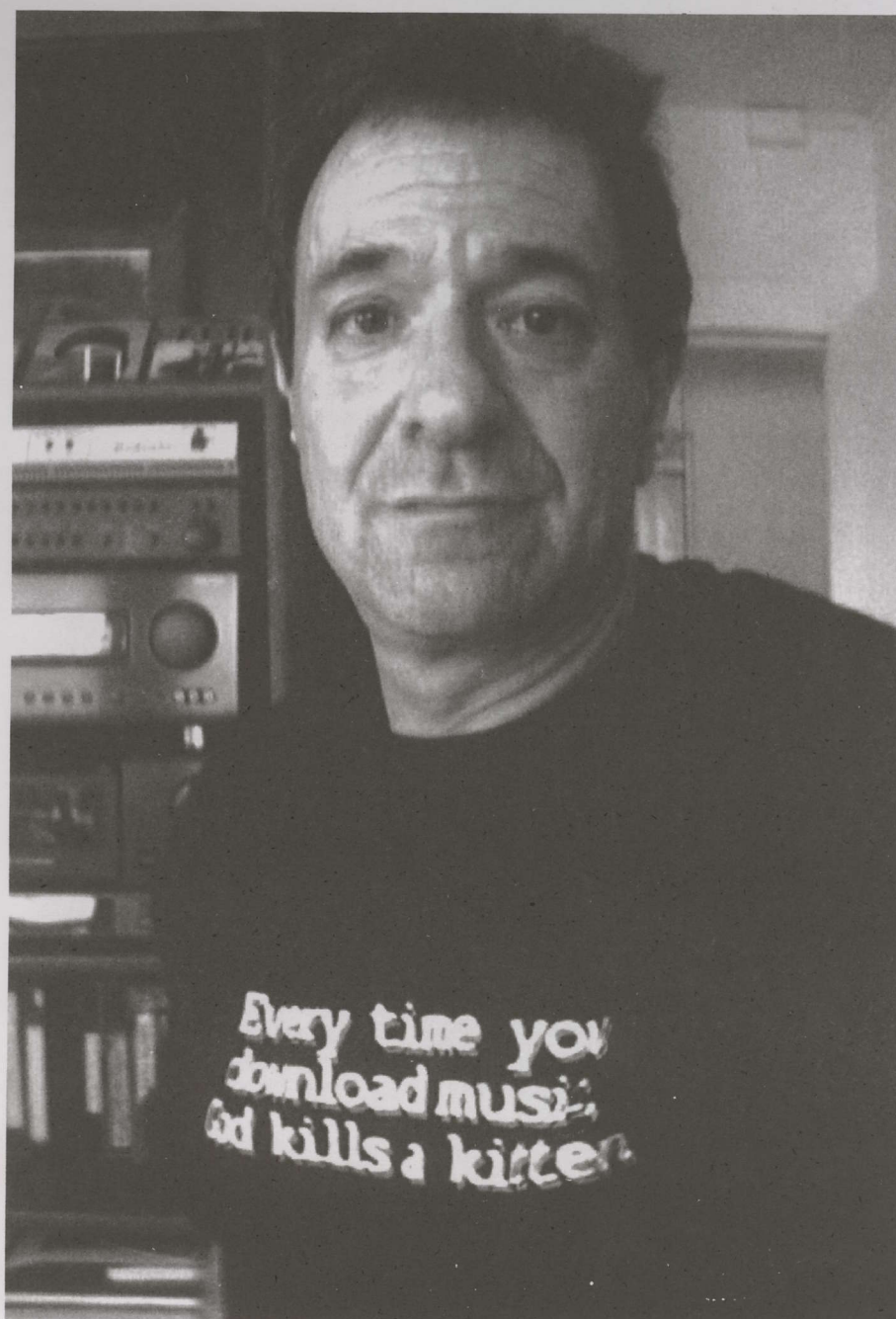
**Step by Step:
2.4 Gig
DVB-MPEG2**

**Mobile Sat
with
Peter Fischer**

**Internet
runs
amuck**

- ✓ Latest Programmer News
- ✓ Latest Hardware News
- ✓ Schaffer: "The One"
- ✓ Observer Reports

Vol. 12 ♦ No. 135
Price Per Copy:
NZ\$10/A\$11/US\$/Euro8



Hualin Pty Ltd

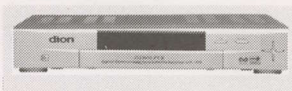
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Email: sales@hualin.com.au Web: www.hualin.com.au

For all prices, product information and banking details please visit the website or phone us.

Specials this month

DT800PVR - Digital Receiver



- 40Gb HDD = 40hr Record time
- 2x CI CAM Slots
- DiSEqC 1.2
- **Fibre Optic Output Capability**
- Price: \$390 AUD + GST

Satlook - Signal Meter



- Digital, Analogue and combined versions available
- A must for the professional
- Simple menus and functions
- Price: Phone up for Quote

DreamMAX - DT470



- Irdeto embedded
- 4900 Channel Memory
- DiSEqC 1.2
- User Friendly
- Price: \$200 AUD + GST

Everything? Yeah we got

LNB

- Zinwell C Band
- Zinwell KU Band
- MTI C Band, Superhigh gain
- One Cable Solution - CBand
- Dual Output KU 11300 MHz

Positioners

- Superjack EZ-2000
- Superjack DP-6600, DiSEqC 1.0/1.2
- Technosat DP-200, DiSEqC 1.2
- Manual Actuator Driver - EW101
- SAP 2000: 99 Memory positioner

Actuators

- Superjack HARL-3618, 18" Actuator
- Superjack HARL-3624, 24" Actuator
- Superjack DG-120, H/H Mount

Receivers

- SuperNET CA, Irdeto Embedded
- Success, Free-to-Air
- Dion DT-370, Free-to-Air Receiver
- Dion 2x CI, Hardware AICAMed
- ChangHong, Mediaguard embedded
- SuperNET Terrestrial, DVB-T
- Phoenix High Definition STB

Dish and mounts

- 1.2, 1.8m Solid Prime focus
- 45, 60, 65, 85cm KU dish Offset
- 2.13m, 2.27m, 2.4m, 3.0m, 3.07m, 3.7m, Mesh Dish, Light and Heavy Duty PSI and JOYSAT Available

- CBand Wall brackets
- CBand Concrete mounts and stands
- KU Gutter mounts
- KU Wall mounts
- KU Float mounts
- KU Tinroof mount

Dion 818 CI - Digital Satellite Receiver



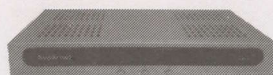
- Slim Size and User Friendly OSD
- 2x CI (Common Interface) slots
- Hardware AICAMed

SuperJack H-H Actuator, DiSEqC embedded



- All it takes is one coaxial cable....
- NO MOTOR CABLE REQUIRED**
- DiSEqC Positioner EMBEDDED!

Supernet - Terrestrial DVB-T



- Digital Terrestrial Receiver
- Slim Design
- High Quality Picture
- Easy to install and use

Dion316 - Digital Satellite Receiver



- FTA + Software Patched
- 4000 Channel Memory
- DiSEqC 1.0/1.2 Compatible
- Price: \$170AUD + GST

Switches and Splitters

- 2 and 4 way DiSEqC switches
- 0/22kHz switches
- 2 and 4 way cable splitters
- V/H Multiswitch
- 0/12V Switch

Cable - 15m, 25m, 305m packs

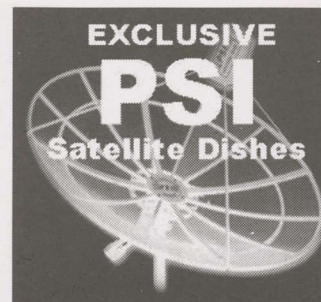
- RG6-U Dual Shield Coaxial Cable
- RG6-U Quad Shield Coaxial Cable
- Cat5 Actuator Cable

Plugs

- F Connectors, Screw or Clamp types
- Cable joiners
- AV Splitters
- Cable Strippers
- Cable clampers
- Various other joiners and accessories e.g. RCA/SCART cables and converters

Misc

- 2.4GHz AV Sender
- Irdeto 2.06B CAMs, Viaccess CAMs
- Satlook Digital Signal Meter
- Satlook Analogue Signal Meter
- Satlook Digital + Analogue combo
- Satellite finders
- Angle level measure instrument
- High Quality Compasses



SatFACTS MONTHLY

ISSN 1174-0779

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This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education. These messages are available to anyone willing to install appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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Gay V. Cooper (ZL1GG)

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The fine print

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our 12th year!

COOP'S COMMENT

I have known Kenny Schaffer from the Washington (DC) April 1981 satellite show - back in the days when C-band FTA was beginning to build momentum which would, peaking in mid 1984, see 100,000 consumer systems sold in a single month (in North America; USA + Canada). Kenny used a public notice board to tack up a sign that read: "\$100 reward to the first exhibitor to capture and show me live Russian television at this show". Kenny had a plan, which only he understood at the time. He wanted to create a system which would deliver internal-to-Russia live TV to Universities and think-tanks in America. For a fee of course; a big fee.

Kenny Schaffer began as an extremely talented ham (radio amateur; N2KS) who could 'copy Morse Code' at speeds such as 80 words (400 characters) per minute - *in his head*. Flawlessly. Think about that - in each second of time, Morse Code sent so fast as to be a total blur, to even skilled folks, flying into his ears at a rate of 6.67 complete letters or numbers each second. Obviously Kenny does not have the typical left-right brain construction. More amazing, Kenny had and has the ability to translate everything the Morse message says, perfectly, while carrying on a coherent 250 word per minute conversation with you. Any you.

No surprise, then, that Kenny attended a rock concert one day and grimaced when he heard on stage guitarists struggling to make their instruments heard against the din of gravel throated vocalists and drummers with a microphone buried inside their snare. He went home and in a few days created the world's first 'wireless guitar mike' which made him the most important and popular person on the planet with musicians such as Pink Floyd and (the) Rolling Stones. The guitar had arrived and Kenny became a mini-God in the rock world.

Back in November (2003) Kenny and I met at Denver's Stapleton Airport, checked into a Marriott Courtyard hotel, and planned our attack on Charlie Ergen, the boy wonder head of DISH TV. Kenny's plane arrived before mine, as he was coming from Moscow, I from New Zealand, and I discovered him squatting cross legged on the marble floor of a reception lounge with a lap-top PC running. On the screen, he was showing off Moscow, then London, and finally New York live TV to a small gathering of curious folks. Actually, they were all women (Kenny is magnetic in attracting women half his age) and one he introduced me to was a USA-famous lady wrestler who regularly appears on WWE. It has nothing to do with these reflections, but Kenny can talk the underpants off any women he has ever met. I was pleased just to watch and learn - not that what I learned would have any practical use to me. Kenny has been divorced for several years - his ex being Russia's #1 (female) TV star and their son, Kibo, a ten year old who will one day make Rupert Murdoch's children and grandchildren run for their collective lives.

Kenny's marble floor demo was of TV2Me, the most amazing TV delivery system I have ever witnessed. And I have seen them all, often before anyone else saw the respective systems (see "VIDEO PIRATES"; page 32). This past week Kenny sent me the latest TV2Me software, Alpha (not even Beta!) version and at 128 kbps I wondered just how much better it could get. Real TV, live, with me selecting which of several hundred channels I wished to view, from essentially any place in the world. This is amazing stuff and it has absolutely nothing to do with satellite - save those increasingly rare occasions when the link between your TV2Me 'receiver' and the source for the programming is through a bird.

Case in point. A recent TV2Me customer (Avner Teller), based in Israel, in mid-October was flying from Tel Aviv to New York - a long, essentially boring flight. Except this TV2Me user was sitting in his Business Class seat with a laptop portable watching home country, Israeli, TV from the moment he left the ground until he arrived in New York. The flight provided Intelsat real time connection to "the web" and TV2Me provided the connection to his at-home TV set just as if he had never left Tel Aviv. Not quite Charles Lindbergh, but close enough.

Charlie Ergen (DISH) was obviously impressed with our joint demonstration, two years ago, but he 'took a pass' on acquiring TV2Me for the DISH empire. Silly Charlie. He apparently believed he could, after being exposed to the system, direct his own technical people to duplicate it outside of the TV2Me patents. Double silly Charlie. I still recall him murmuring as we turned on the demonstration, "This is the big one". Wrong. Kenny Schaffer. *He* is "the big one".



November 15, 2005

In Volume 12 ♦ Number 135

Generating your own MPEG-2 transmission streams -p. 7; Mobile satellite reception grows up -p.15; Broadband Internet: Up to 2 million new connections weekly -p. 20

Departments

Programmer/Programming -p.2; Hardware/Equipment Update -p. 4; SatFACTS Digital Watch -p. 23; Supplemental Data -p. 26; With The Observers -p. 27; installing dealers -p. 29

-On the cover-

"Faster horses, younger women, older whiskey and more money" (see above).

PROGRAMMER
PROGRAMMING
PROMOTION

UPDATE

NOVEMBER 15, 2005

Parrot and eye patch

"The VIDEO PIRATES CD has arrived in my mail box and all I can say is 'WOW!'. I have scanned most of the 566 pages, printing random pages that caught my eye and I was flattered to learn that the text identifies me as one of the 'Pirate guys' because it was I who introduced American satellite programming into the Eastern Caribbean, being in the good company of fellow 'pirates' such as Ike Blonder (Blonder Tongue Labs), Bob Behar (Hero Communications) and others. I am walking around with a parrot on my shoulder and wearing an eye patch!"

Peter Sutro, Rhode Island, USA

Reminder: As3S replaces As2

"From 1 October TV Asie5 is full-time on As3S 3760H, Sr 26.000, 7/8 and other European Bouquet services (such as DW) will be joining them perhaps as you read this. The original As2 4000H bouquet will be shut down 31 December."

Hans Versluys, Triangle TV

UN rises to copyright

"The World Summit on the Information Society (WSIS) is a UN initiative created to adopt universal rules, regulations and laws relating to how original works (from pharmaceutical to published works, video/movies, music) will be 'protected' in the future. At the root of this one finds concerns that 'the web/internet' will make all existing protection plans essentially obsolete. November 16-18, in Tunis hundreds of high level folks, 175 countries, will convene to investigate the new world of 'Internet Governance'.

Ralph Johnson, Los Angeles

Quality is as quality does

"Reference SF#134 history lesson on Healing (brand name), I quite agree using a recognisable name which has a good history is good marketing. In my mind, a product gains from having a real name rather than a number - the perception of quality. We are overloaded with number; bring back the names!"

IF, Queensland

C-band programming in USA? It all started here, in 1979, with the first 'private' (home dish) terminals and from that kernel grew into a world-wide phenomenon. And now it is dying - big time. From a high of more than 2.5 million C-band dish subscribers, the inroads of Ku band 'small dish' has steadily reduced the number of paying users to a new low sub-500,000. Existing C-band programmers have three choices: (1) Kill the C-band analogue (which requires a full transponder and costs heaps), (2) Convert to digital and encourage subscribers to do the same, or, (3) aggressively push subscribers to 'small dish' Ku band. A die-hard C-band pioneer user writes about the difficult choices in SF#136 (December) but the hand writing is clearly on the wall - C-band analogue is in significant jeopardy in the land where it all started.

For commercial readers only. The rapid advance of compression algorithms allowing extremely high quality (S-VHS and better; much better) to be transmitted through existing wirelines telco networks is pacing the technical development of 'linking' in the broadcast world. A variety of technical options, scaleable for each application and user, are now available from TV2Me (www.TV2Me.com) Bottom line? Maintaining *satellite* links to get programming from point Y to point Q may no longer be cost effective; you will see less, not more (linking) video on satellites in the future. Stand back - the internet is now officially "the video net" and we will all be forced to adjust (P. 20).

DIY Mobile Video. So there you are sporting the latest 3G telephone with the ability to 'film' an event that occurs within lens-shot. People dying, vehicles piled up, a sports legend being honoured? 'Shoot it' and 'sell it'. Video phone company 3 UK is opening a web site where you can download your lens-shots and then sell your file(s) on a pay-per-view basis to those curious enough to want to see what you saw. Each time a video clip is downloaded, the originator is paid one penny (well, so much for fame AND fortune!) by 3 UK. Downside? Early users are engaging in something termed 'Happy Slapping' where innocent folks are accosted and 'slapped' while the lens captures their responses. Is this what (Sir) Arthur C. Clarke had in mind with his vision 50+ years ago?

New Zealand has allocated more than \$500,000 to create a 'satellite news service' to surrounding Pacific neighbours. This is described as an 'interim step while a more aggressive plan is formulated'. Tagata Pasifika, TVOne evening news will be satellite distributed to Cook Islands, Niue, Samoa and Tonga 'without charge', perhaps in response to the near run-away success of Australia's ABC Asia-Pacific service.

Dr Dish on Net. Each Tuesday USA time, <http://www.uontv.com> which works out to be Wednesdays in Pacific at 1700UTC (do your own conversion 3AM Sydney).

UNAOHM

*a family of measurement
success for 70 years*



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New Zealand: Hills Industries (09) 274 6509

From the top line EP 3000 EVO to the economical handheld S22, C30 and T40, Unaohm's claim to fame is sound measurement principles. Now supported in the Pacific by Laceys.tv's Factory Trained Repair and Cal centre, there are good reasons to make your next meter an Unaohm!

Look alike?

"The Healing DVB-S unit reviewed in SF#134 has a menu that appears to be nearly 100% the same as the Emetabox receivers (and clones including the Diviton Vbox). I recently did a software upgrade on mine with many changes in the code section, including addition of BISS which should allow opening of MBC Korea or Antenna Greece from NSS6 - although you still need the correct code to enter. I believe BISS has been added to most UCAS skilled receivers because of sport-programme encoding during major sporting events."

RU, NZ

Help from outside the loop

"Ziggy Switkowski (ex Telstra CEO) at the 'National Press Club' shared his vision of how Australia should untangle its complex pay-TV and FTA worlds. He suggested analogue should be switched off in 2008, no exceptions, new television broadcasters should be allowed to start, foreign ownership rules limiting media ownership abolished, and pay-TV should be allowed using spare bandwidth capacity by the FTAs. Of course this represents his opinion, not any sort of government policy!"

AI, NSW

Check your eyesight

TelstraClear Chief Executive Allan Freeth believes the company's digital service 'is fantastic' and 'people might check their plasma screens if they are unhappy', adding, 'to my eye it is a pretty impressive result'. The firm operates a cable service in portions of Wellington and Christchurch and it all comes down to the most basic law of digital distribution: 'Crap in = crap out'."

Steve Johnson, NZ

DAB in Australia?

"L-band (Eureka) digital radio will proceed with a rollout according to a recent government announcement. This seems like a sure fire path to disaster. L-band is microwave, LOS, easily blocked by terrain, vegetation, buildings. No other responsible country is following this path. Canada was an exception but has now had second thoughts - broadcaster CHUM which secured a license says they will cancel their plans, citing monstrous costs and a total lack of a listening audience."

WR Hepburn, Ontario, Canada

HARDWARE EQUIPMENT PARTS

UPDATE

NOVEMBER 15, 2005

Have wheels - will watch satellite. Mobile satellite reception, in motion or from a temporary (as in overnight) stopping spot is no longer a dream; it is here and it is fully automatic. The consumers no longer have to learn quantum mechanics and geo-arc physics to set-up a temporary location Ku band reception package. Is this the end installing dealers? Page 15.

Smaller and portable. USA's DISH Ku-band service is delivering 'PocketDish' accessory with screen sizes to 7". Hard-drive equipped, PocketDish plugs into user's home dish system to record up to 40 hours of programming to go, "in a short pocket". PocketDish is also compatible with TIVO, competitor DirecTV and other services and in lieu of holding TV programming, will store up to 30,000 musical selections or 400,000 photos.

Taiwan's Asuka is apparently the first to bring to market a small, portable DVB-T receiver that fits into the proverbial shirt or coat pocket. The 13.5 x 8.5 x 3.5cm package includes a 3.5" TFT-LCD screen, built in 'whip' antenna (good luck with that one!). A more elaborate model, named 'Frigate', is designed for permanent in-vehicle installation, twin A/V inputs to add feeds from DVD or other sources.

Installing those boxes. UK regulatory body Ofcom reports as of end of June 63% of Britain's homes have 'some form of digital TV' operating (15,715,000). In the 90 day period leading up to the report, a quite astounding 700,000 'Freeview' terrestrial TV boxes were sold to consumers. Ofcom believes at the present time, homes with Freeview are investing in second and even third STBs (30% of homes are estimated to have two or more). A total of 5,178,000 homes now have the service while the newer 'Freesat' service has crossed the 500,000 threshold.

Profits & problems. Fiji TV has declared a record dividend for stockholders, after adding PNG's television station to their larder last December. Alas, a new Australian-bred 'UNwired' service, using the 3.4-3.6 GHz range, is causing nettlesome reception problems for the firm's Intelsat 701 C-band pay-TV service. Engineers have identified the LNBf as the most likely 'weak link' and steps are underway to modify existing units with a 'trap' to reduce inputs below the firm's nominal 4055/4095 downlink transponder frequencies. By being near the top end (4200 MHz) of C-band, there chances of success appear good to resolve this one without elaborate front-end add-on filters.

Pay-TV operators in the Middle East are reeling from the launch in the past 18 months of 55 new FTA satellite channels bringing the total available to homes not opting for pay-TV to 155. A second challenge has been the rapid growth of 'neighbourhood cable' service; one individual installs equipment to receive and distribute dozens of FTA (and pay) channels, especially rampant in Lebanon and Egypt. Piracy cards are a third problem, typically under US\$10 in the open markets.

Phoenix Technology Group

Satellite Equipment & Accessories One Stop Supermarket



**Phoenix 2.35m Motorized
Extra Heavy Duty Mesh** \$180/each
Buy 10 get one free



**Foldable Arm Dish
best one for caravan
& mobile people**
64cm \$25/each
78cm \$48/each
88cm \$55/each
North bracket \$5/each

Irdeto 2.06B CAM	\$110	PBI C+Ku band LNB	\$65
Viaccess CAM	\$110	Zinwell C band LNB	\$30
65cm Azure shine offset dish	\$25	Zinwell Ku band LNB	\$25
75cm Azure shine offset dish	\$30	MTI C band LNB	\$25
85cm Azure shine offset dish	\$35	MTI one cable solution LNB	\$45
One leg gutter mount	\$18	Satellite finder	\$25
Two leg gutter mount	\$22	RG6 striper	\$20
Tin roof mount	\$22	RG6/RG11 crimper	\$30
Wall mount	\$15	Angle meter	\$35
Superjack H-H motor	\$95	Compass	\$5
2.3m SD mesh dish	\$150	RG 6 Crimp Connector (100)	\$25
3m SD mesh dish	\$295	22K switch	\$10
3m HD mesh dish	\$330	Two way DiSEqC switch	\$10
3" 2.5m galvanised pole	\$30	Four way DiSEqC switch	\$12
3" 3m galvanised pole	\$35	Satellite 2 way splitter	\$1.50
3" 3.5m galvanised pole	\$40	Satellite 3 way splitter	\$2
3" Triangle Pole for C band dish	\$50	Satellite 4 way splitter	\$2.5
Speaker Stand for caravan use Ku dish	\$45	4 way multi-switch	\$35

Best performance



**Paralipses 1.2m
prime focus panel
dish**

\$730

(\$146/each x 5)

AZ/EL mount \$32/each



Easy transport

**Paralipses 2.6m
mesh dish**

\$1500

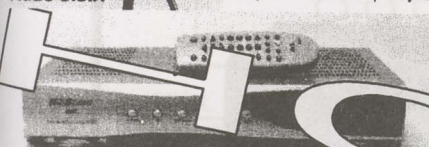
(\$300/each x 5)

Multi-beam 1m offset dish

Ku band satellite from
Optus B3 + Optus C1 +
Pas 8 + Pas 2
Just one dish to receive all

\$150/each

Up to four
LNB
30 deg.
wide

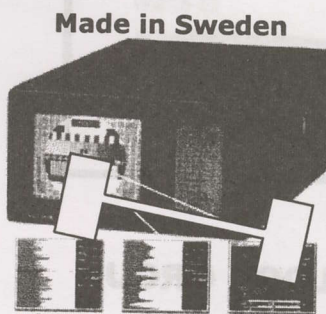


Koscom 1600A

Irdeto Embedded Satellite Receiver
\$200 with free Optus Aurora card
Buy 10 or more and get 5% dis-
count & one box of 305m RG6 cable
for free

SATLOOK Digital NIT

- \$1395**
- Satellite-receiver 920-2150 MHz.
 - Spectrum-analyzer with expanded spec-
 - trum.
 - Digital BER, QPSK and S/N-ratio.
 - 4.5" B/W monitor for PAL/NTSC/SECAM.
 - Tunable sound 6.5 - 8.5 kHz.
 - LNB voltage 13/18V. 22 kHz tone switch.
 - DiSEqC control (1.0, 1.1, 1.2).
 - KU- and C-band (normally inverted video).
 - 99 memory-positions for spectrum pic-
 - tures.
 - Satellite identification.
 - Symbol rate 1-30 Msymb/s.
 - RS 232 for PC connection.
 - Built in, rechargeable battery.
 - Only 5 kg complete with carrying-case.
 - Transponder content analysis.

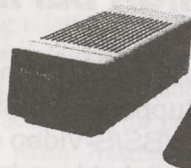


Made in Sweden

SATLOOK COMBO \$2295

- The combination of SATLOOK Digital NIT and TVLOOK
- Input frequency: 2-900 MHz and 920-2150 MHz
 - 4.5" B/W Monitor for PAL/NTSC/SECAM
 - Lots of memory positions for spectrum pictures
 - RS232 for PC-connection
 - Built in, rechargeable battery. Only 7kg complete with carrying case
- TV-PART:
- 2-900 MHz spectrum analyzer
 - Presents full range spectrum (and expanded)
 - Very high accuracy, $\pm 1\text{dB}$ (at 20°C)
- SAT-part:
- 920-2150MHz spectrum analyzer. Digital BER, QPSK and S/N-ratio
 - Satellite-ID and TV/Radio-channel info (NIT)
 - Tunable audio bandwidth 5.5-8.5MHz
 - LNB voltage 13/18V, 22kHz tone switch
 - DiSEqC according to level 1.0, 1.1, 1.2
 - KU- and C-band (normally inverted video)

Phoenix 2800A \$130
The Best FTA Satellite
Receiver On the Market



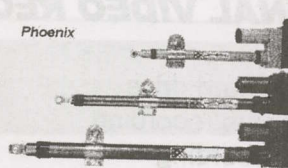
SuperJack EZ2000
Positioner \$50/each

Dreamax DT470 \$160/
each Irdeto Embedded
Satellite Receiver



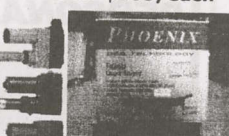
Motek V Box II
DiSEqC1.2 Positioner
\$65/each

Zinwell 15K
LNB \$25/each
for box of 24



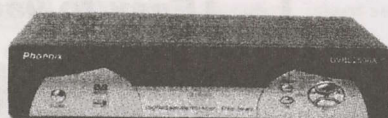
Actuator from 12' standard
duty to 36' heavy duty
From \$35/each to \$220/each

Motek SG2100
Motor \$105/each

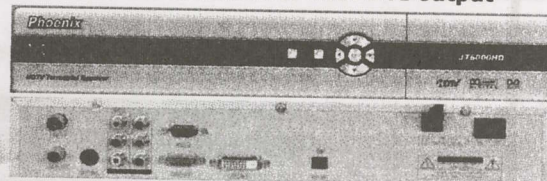


RG6 Cable
Dual shield
\$65/box
Quad shield
\$75/box

Phoenix JT3300A
Digital Terrestrial Receiver
\$110/each



Phoenix JT6000A High Definition Digital
Terrestrial Receiver with DVI output



This Month Trade Special

Optus B3/Pas 8 Free To Air channel Package

Phoenix 2800A digital satellite receiver x 5
64cm foldable arm dish x 5
Zinwell 11.3GHz/10.7GHz/universal
Ku band LNB x 5
Gutter mount/wall mount x 5
One box of RG6 cable

\$975 (\$195/each x 5)

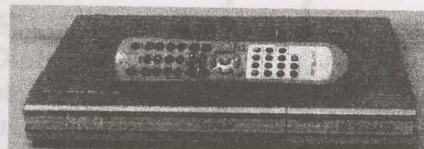
Optus B3/Pas 8/Optus C1 Irdeto embedded channel Package

Koscom 1600A Irdeto cam embedded digital satellite
receiver x 5
64cm foldable arm dish x 5
Zinwell 11.3GHz/10.7GHz/universal Ku band LNB x 5
Gutter mount/wall mount x 5
One box of RG6 cable

\$1275 (\$255/each x 5)

Magix 9600

Digital satellite receiver with
embedded cam + 2CI \$160/each



C band free to air channel Package

Phoenix 2800A digital satellite receiver x 5
2.3m SD mesh dish x 5
Zinwell C band LNB x 5
3" 3m galvanized pole x 5
One box of RG6 cable

\$1975 (\$395/each x 5)

Dealer Inquires Welcome

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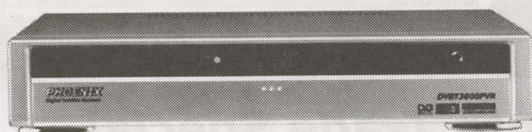
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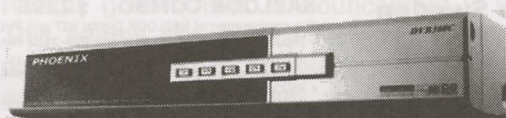


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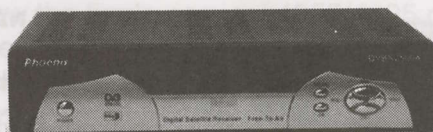
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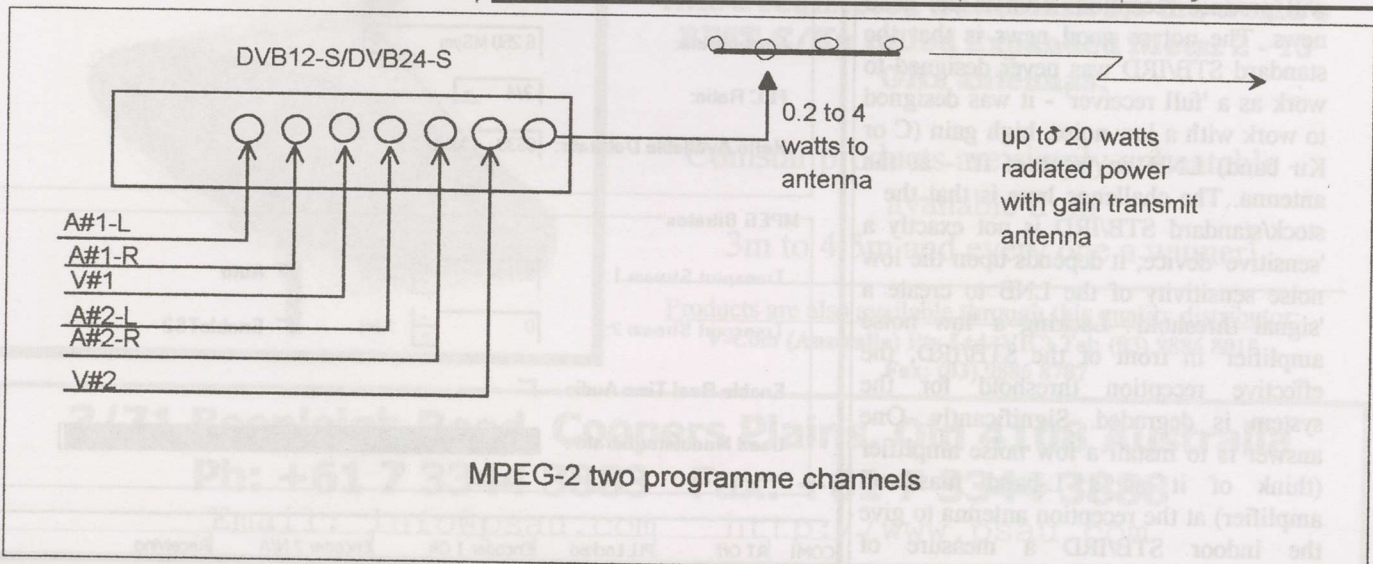
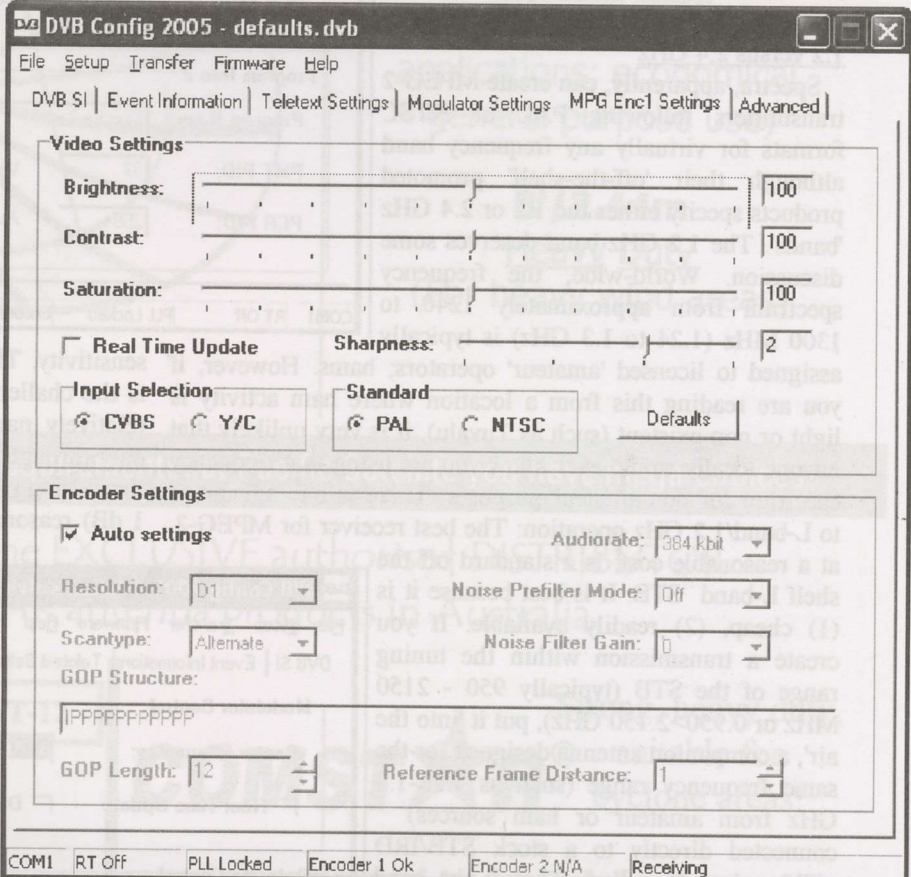
In the not very distant past, anything relating to MPEG-2 signal generation cost more than a new automobile. Tonga, the country, was first to introduce MPEG-2 TV distribution (5 programme channels; SF#123) in the Pacific area for pay-TV distribution, at about the same time when Australia was turning on COFDM FTA terrestrial service. What makes MPEG-2 "universal format" signal transmission attractive is that it works with lower signal levels (20-22 dB C/NR) than standard PAL analogue (40+ dB C/NR) for roughly comparable signal quality levels. Of course as long as the 'big boys' and governments control the frequency bands for signal transmission, any interest from those who do not quality as 'big' or 'government' have been left outside the loop. No more. MPEG-2 is now available at a cost which some will find attractive.

A Dutch firm (Spectra Electronic Development; www.spectra-by.nl) has broken both the technology and pricing barrier although non-commercial experimenters will still find the package price out of reach. Spectra has created a series of DVB-MPEG2 transmitter packages covering in stock form both the 1.2(>1.6) GHz band and the 2.4 (2.225>2.6) GHz region. Either package allows the user to couple a single video (+ mono or stereo audio) channel, or two video (+ stereo or mono audio) baseband services into their modulator, connect the modulator to a transmit antenna, and before you can say 'MPEG-2 is in the air', it is.

Spectra also provides power boosting 'linear amplifiers' housed in the same one



One RU (rack unit) contains everything you require to squirt MPEG-2 multiple programme channel video + (stereo) audio over distances to 30km (LOS).



rack unit (44mm height) package generating up to a couple of watts of energy at either 1.2 GHz or 2.4 GHz. Connecting 2 watts of S-band (2.4 GHz) transmitter power to a 10 dB gain transmission antenna and you end up radiating signals in the 20 watt range; significantly more than you need to cover 30km LOS (line of sight) when employing a suitable gain-receiving system at 'far end', given the parameters of MPEG-2. Within the 2.4 GHz band, as many as 8 of their transmitter packages could be 'stacked' creating 16 programme channels with off-the-shelf equipment. In case you have missed the 'obvious' until this point - 2.4 GHz transmitters are unlicensed; simply put them on the air and broadcast!

1.2 versus 2.4 GHz

Spectra, apparently, can create MPEG-2 transmitters following PAL or NTSC formats for virtually any frequency band although their 'off-the-shelf' promoted products specify either the 1.2 or 2.4 GHz 'bands'. The 1.2 GHz band deserves some discussion. World-wide, the frequency spectrum from approximately 1240 to 1300 MHz (1.24 to 1.3 GHz) is typically assigned to licensed 'amateur' operators; hams. However, if you are reading this from a location where ham activity is light or non-existent (such as Tuvalu), it is very unlikely that anyone locally would ever know you are using that frequency spectrum for non-amateur purposes. There is one advantage to L-band/1.2 GHz operation: The best receiver for MPEG-2, at a reasonable cost, is a standard off the shelf L-band STB. It is best because it is (1) cheap, (2) readily available. If you create a transmission within the tuning range of the STB (typically 950 - 2150 MHz or 0.950>2.150 GHz), put it 'into the air', a companion antenna designed for the same frequency range (such as 1.23-1.3 GHz from amateur or ham sources) connected directly to a stock STB/IRD will produce reception. That is the good news. The not so good news is that the standard STB/IRD was never designed to work as a 'full receiver' - it was designed to work with a low noise, high gain (C or Ku band) LNB 'in front of it' - at the antenna. The challenge here is that the stock/standard STB/IRD is not exactly a 'sensitive' device; it depends upon the low noise sensitivity of the LNB to create a 'signal threshold'. Lacking a 'low noise amplifier' in front of the STB/IRD, the effective reception threshold for the system is degraded. Significantly. One answer is to install a low noise amplifier (think of it as a L-band masthead amplifier) at the reception antenna to give the indoor STB/IRD a measure of

sensitivity. That's what is required - unfortunately (and here is the challenge) the only L-band LNA devices available at relatively narrow band (such as 1.230>1.3 GHz) and sold only through amateur radio sources. We direct you to one on the closing page of this report. If or when a low noise (under 1 dB) reasonable gain (30 dB +) LNA (low noise amplifier)

DVB Config 2005 - defaults.dvb

File Setup Transfer Firmware Help

DVB SI | Event Information | Teletext Settings | Modulator Settings | MPG Enc1 Settings | Advanced

Network Info

Network Name: Spectra DVB Network

Network ID: 53 TS ID: 1109

Service Info

Service Provider Name: Spectra DVB Network

Program Info 1

Program Name: Spectra 1 ☒ Enable Teletext

PMT PID: 32 Video PID: 162 Teletext PID: 304

PCR PID: 133 Audio PID: 88 Service ID: 5004

Program Info 2

Program Name: Spectra 2 ☒ Enable Teletext

PMT PID: 33 Video PID: 257 Teletext PID: 304

PCR PID: 256 Audio PID: 258 Service ID: 5005

COM1 RT OFF PLL Locked Encoder 1 Ok Encoder 2 N/A Polling

DVB Config 2005 - defaults.dvb

File Setup Transfer Firmware Help

DVB SI | Event Information | Teletext Settings | Modulator Settings | MPG Enc1 Settings | Advanced

Modulator Control

Center Frequency: 1270 MHz

☐ Real Time Update ☐ Disable Modulation ☐ Enable Spectral Inversion

Datarate Control

SymbolRate: 6.250 MSym

FEC Ratio: 3/4

Netto Available Datarate: 8639 kbit

MPEG Bitrates

Transport Stream 1: 8311 kbit ☒ Auto

Transport Stream 2: 0 kbit ☐ EnableTS2

Enable Real Time Audio ☐

Used Modulator bitrate: 99%

COM1 RT OFF PLL Locked Encoder 1 Ok Encoder 2 N/A Receiving

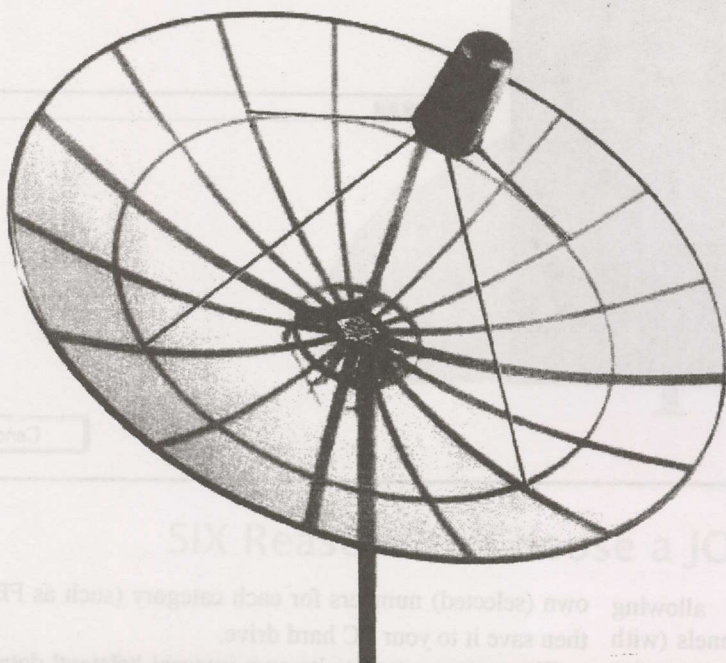


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finally appears in a form that supports 1.2 GHz amplification, this frequency range product will become quite desirable. Until that time, well, if your local frequency planning allows it, and you can get by with under 10km LOS (line of sight), 1.2 GHz might be for you.

The basic packages

Spectra calls both the 1.2 (L) and 2.4 (S) band products 'entry level products' and suggest they are useful for MMDS, DSN/DENG (broadcast links from remote sites to a production centre), fixed and mobile (a special mobile package is available, digital satellite headends and of course digital terrestrial. The units accept composite (NTSC or PAL; CVBS) format video in, as well as Y/C (luminance chrominance), provide 2 audio channels (stereo or two mono) 'standard' and 'Advanced 4:2:0 MP@ML video compression at data rates up to 12.5 megabit/s. The system, as the set-up screen captures here illustrate, are done with provided (CD) software, a front panel that includes a front of unit function and set-up display and RS-232 serial formatting. A second MPEG-2 encoder is

optional (includes its own 2 channel audio) allowing transport of two separate video programming channels (with companion audio) for each unit. The system supports service name identification, SI table insertion, user selectable symbol rates between 1,667 and 12.5 Msymbols, and FEC rates for 1/2 to 7/8; just like the more expensive professional hardware. Frequency adjustments are in 1 MHz steps. Pricing varies from Euro2500 for the standard unit (one video + 2 audio stream), Euro 3200 (two video, 4 companion audio streams) and an added Euro 600 to increase the output power from the nominal -2 dBm output level with an in-built linear amplifier to approximately 4 watts. Additional power amplifiers are also available to the ten watt region.

Set up and operation

This equipment sets up like most standard satellite uplink modulators. There is a network name, a network ID, TS ID and PIDs to be selected. The user is pretty much free to assign their own numbers (screen grab photo page 7, here). This is the 'DVB Config' initial set-up sequence. Proper initialisation requires a PC with a connection to the RS-232 port on the modulator, and use of the factory provided software CD. Once that is installed/connected, the start-up procedure is very straight forward as you follow sequential 'prompts' on the PC screen. The factory CD provides the sequence and instructions, you enter your

own (selected) numbers for each category (such as FEC) and then save it to your PC hard drive.

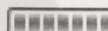
The system supports its own internal 'teletext' data stream although it can be avoided if you have nothing to enter as a teletext source. Individual teletext streams in the case of a two programme channel versions are also supported (above). The

InstallShield Wizard



Preparing to Install...

Spectra's DVB Config 2005 Professional Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.



Cancel

DVB Config 2005 - defaults.dvb

File Setup Transfer Firmware Help

DVB SI | Event Information | Teletext Settings | Modulator Settings | MPG Enc1 Settings | Advanced |

General

TT Time zone: GMT+1

Subpage header cycle time: 20

Page Header: {G}Spectra DVB {Text {PPP} {Y}00:00:00

Header Preview: Spectra DVBText 100 00:00:00

Red {R}

Blue {B}

Cyan {C}

White {W}

New backgr. {N}

Green {G}

Yellow {Y}

Mag. {M}

Page nr. {PPP}

Black backgr. {Z}

Teletext Pages

page 100 - C:\Program Files\Spectra\DVB Config 2005\TT Pages\100DVB.TT
page 110 - C:\Program Files\Spectra\DVB Config 2005\TT Pages\FDEMO110.TT
page 120 - C:\Program Files\Spectra\DVB Config 2005\TT Pages\FDEMO120.TT
page 130 - C:\Program Files\Spectra\DVB Config 2005\TT Pages\FDEMO130.TT
page 140 - C:\Program Files\Spectra\DVB Config 2005\TT Pages\FDEMO140.TT

Add..

Remove

Select all

Unselect all

Edit page

Upload Teletext

COM1

RT OFF

PLL Locked

Encoder 1 Ok

Encoder 2 N/A

Polling

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teletext page(s) also support entry of local time and an automatic daylight savings time (summer time) function. Teletext pages may be cycled, on command, or the user can select any page of interest and go directly to it, assuming a suitable STB/IRD configuration at the receiver end. The system allows the user to enter the teletext data or 'patch' from an alternate, different, teletext source. There is one limitation here - teletext has evolved from the original 1970's format (current level is version 3.5) although the Spectra software is limited to the original version 1 level. For most teletext capable receivers, version 1 is backwards compatible and should present few implementation problems.

Spectra gives you the ability to 'invert' the video (negative becomes positive and so on) at will; this is not intended as a low-cost 'encryption' system although some might find it useful.

Bandwidth is a function of data stream loading and the Spectra box allocates bandwidth to each of two separate programming channels based upon the maximum data rate available. One solution here is to increase the symbol rate if you are 'ringing' too often (yes, this is an excellent 'teaching tool' on the refinements associated with MPEG-2 technology). And if you get into trouble, selecting the wrong combination of parameters, there is a 'When Nothing Helps' button that allows the software to configure the transmission stream to something akin to 'default settings' based upon your particular inputs.

So - who would want this system?

This is not a toy, and anyone who lacks the basics in analogue TVRO retransmission should stay away; go and find outside help. Having said that, because of the 2.4 GHz 'unlicensed' status in virtually any world area, there are some exciting opportunities here. Let's visit a handful.

First the issue of security. Once you are transmitting at 2.4 GHz, one or more programme channels, there is essentially no 'security' (CA) here. Anyone who works out how to down convert the 2.4 to 1.2 and connect up a standard MPEG-2 STB/IRD will have your signal. That's the reality, even if you 'reverse' the black and white levels. But perhaps there are other business opportunities here. One is to limit coverage to a specific geographic region, and for as long as it lasts, be the 'sole source' for the reception equipment. Just don't kid yourself - when folks work out that you have Iraqi programming on S-band, well, the word will spread and some clever person who also reads

DVB Config 2005 - defaults.dvb

File Setup Transfer Firmware Help

DVB SI | Event Information | **Teletext Settings** | Modulator Settings | MPG Enc1 Settings | Advanced

Network Info

Network Name: Spectra DVB Network

Network ID: 53 TS ID: 1109

Service Info

Service Provider Name: Spectra DVB Network

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Program Info 2

Program Name: Spectra 2 ☒ Enable Teletext

PMT PID: 33 Video PID: 257 Teletext PID: 304

PCR PID: 256 Audio PID: 258 Service ID: 5005

COM1 RT Off PLL Locked Encoder 1 Ok Encoder 2 N/A Polling

SatFACTS will be on the case promptly. On the other hand, there are remote locations (such as caravan parks) where you could create a multiple-channel distribution service within which visitors don't stay long enough to work out what is being done. Not many people travel around with L-band

DVB Config 2005 - defaults.dvb*

File Setup Transfer Firmware Help

DVB SI | **Event Information** | Teletext Settings | Modulator Settings | MPG Enc1 Settings | Advanced

Program 1

Short Event Name: Digital Video Broadcasting

Short Event Text: Spectra DVB-S

Extended Event Text: Enjoy the live transmissions of the Spectra team members during this technical session.

Enable Parental Rating ☐ Minimum Age: 4 Event ID: 291

Program 2

Short Event Name: High Res Channel

Short Event Text: MPEG Performance Testing

Extended Event Text: With Spectra DVB-S you'll be enjoying the wonderful world of MPEG2 encoding and transmission.

Enable Parental Rating ☐ Minimum Age: 4 Event ID: 292

COM1 RT Off PLL Locked Encoder 1 Ok Encoder 2 N/A Receiving

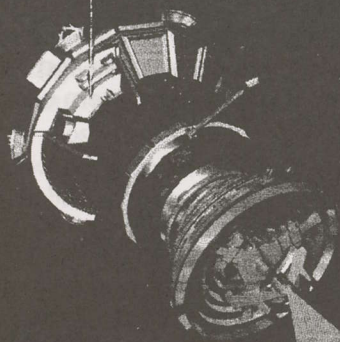
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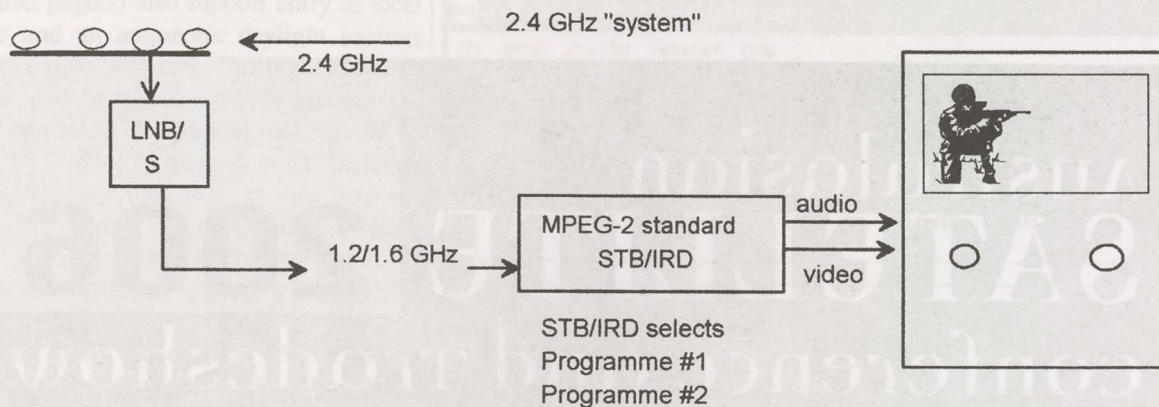
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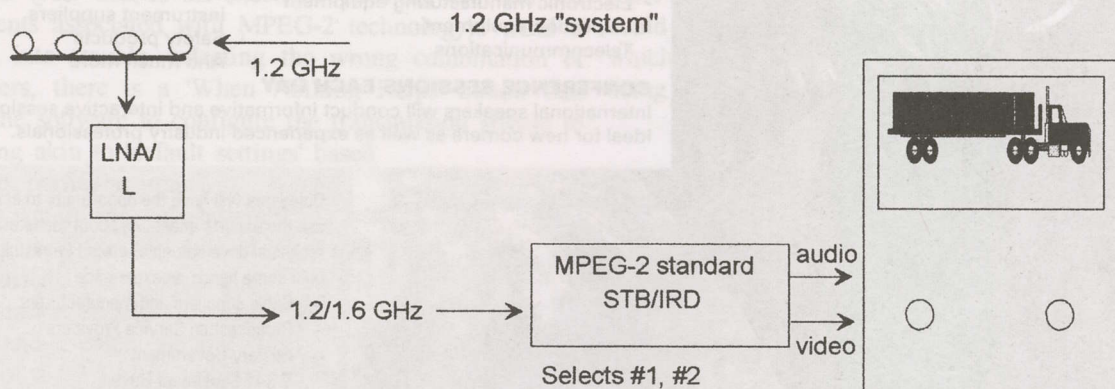
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Reception options: Above - if transmitting on 2.4GHz, a suitable reception antenna (1) coupled through a short run (1m or under) of 50 ohm RG-213/U (fitted with Type N male fittings on both ends) transfers the energy to a down converter (LNB) which outputs in the L-band (1.2>1.6 GHz) region, for transport through RG6/U cable to a standard FTA MPEG-2 STB/IRD. If the origination point is in stereo, and there are two programme channels, the reception point selects the exact transmission service as it entered the transmitter package.

Reception options: Below - if transmitting on 1.2 >1.6GHz, where this is legal!), a suitable reception antenna (1) couples through a short run (1m or under) of 50 ohm RG213/U (fitted with Type N male fittings on both ends) transfers the energy to a LNA (low noise amplifier; [2]) operating in the 1.2 GHz region, and then through a similar run of RG213/U to the STB/IRD (with a Type N to 'F' transition fitting at the STB end). The problem with 1.2 GHz is that LNA (low noise amplifier) devices are difficult to find (2) and not easy to use and lacking a low noise amplifier at the antenna, the system is significantly less sensitive than a 2.4 GHz system equipped with a low noise/high gain LNB down converter.



1/ Merit CCTV at www.meritcctv.co.nz has several models of 50 ohm gain yagi antennas of quality construction for both 2.4 and 1.2 GHz. 2/ Low noise amplifiers for 1.2 GHz are virtually impossible to locate; one firm (very difficult to deal with) that stocks the product is SSB Electronics (www.ssbusa.com; models SP-23 and SLN - the lower cost and recommended version). No, a standard L-band inline amplifier will not do you much good - they will increase signal voltage but will not improve the front end noise figure of the stock STB/IRD (most of which vary upwards from 12 dB noise figure - not impressive; model SLN is 0.4 dB nf, 30 dB gain). We are working to 'entice' a design lab to build this device at a reasonable price and will advise if - when - we have success.

STB's supported by 2.4 GHz down converters and antennas and that will be your 'protection' from unauthorised viewers.

Surveillance applications are also an opportunity - you could arrange to feed multiple camera views through one of these systems such that the sum of all cameras could be viewed kilometres from the surveillance location.

If you keep the power down (such as the standard -2 dBm level) and transmit antennas 'low' you could control the coverage such that after a few kilometres there is no reception

- a way to 'share' Turkish reception fed from a C or Ku band satellite with other nearby interested viewers.

2.4 > 1.2 downconverters

Spectra has model SPDC2400, 0.8 dB noise figure, 35-45 dB gain inputting 2320>2600 and outputting 1320>1600; Euro \$600 range. An alternate in the US\$150 range with similar characteristics appears on page 25 here. Both are intended for type N input, F output and outdoor mounting powered from the receiver STB/IRD.

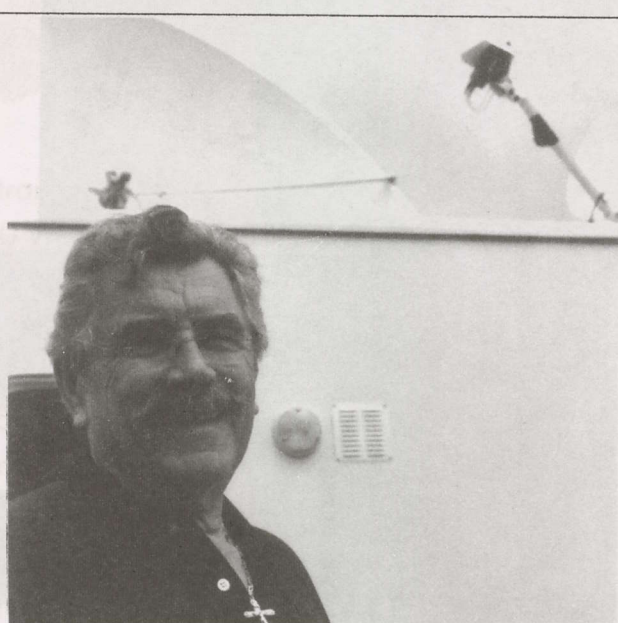
Beware of quick fixes!

Take it with you Ku satellite grows in the Pacific

It is tough to find a 'niche' where you can still earn a reasonable living from your satellite installation skills, faced with \$50 installs and marketing efforts by the name-brand Ku programmers that basically gives away both their programming and the all-important installation as enticement to become part of their captive audience. As SF#131 reported, in the USA, one of the hottest subset markets going involves 'mobile satellite reception' where thousands of vehicles each week are adding 'live Ku band satellite TV' to their otherwise never ending list of 'taking your home with you' in the family or commercial vehicle. There are two segments to this challenge at the top of the pile. First, will the vehicle be capable of accessing a Ku signal while in motion, or second, will it settle for accessing satellite when parked? The first choice involves active antennas that essentially will cover the roof of a 7 or 9 passenger vehicle and it is not for the faint of heart (or pocketbook). Any 'mobile-in-motion' Ku band reception is subject to outages as a vehicle loses LOS (line of sight) to the satellite location(s) behind trees, buildings and terrain. The most successful in-motion reception involves sizeable phased antenna arrays, electronically driven for best C/NR, on jumbo jets where at least the 'vehicle surface area' exists to allow large antenna arrays. Still, 'mobile in motion' for both TV reception and two-way (medium to high speed) Internet delivered via satellite is a rapidly growing market.

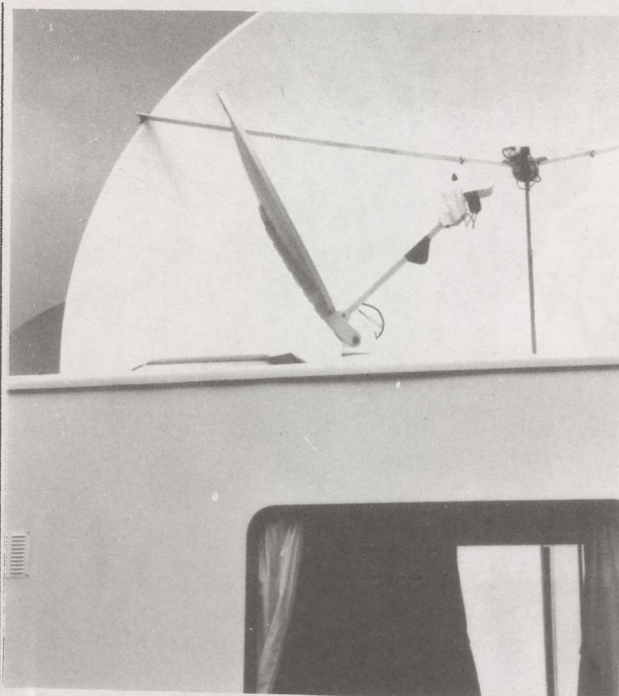
Recreation vehicles, including long-haul truckers, are a subset of this market and given the erratic reception problems associated with 'in-motion' a more mass appeal opportunity.

Searching - found. Apply power, turn on the receiver-dish finder system and heat up a cup of coffee. Before the coffee is ready to drink, the dish has done everything it is supposed to do, moving like a robotic driven arm, finding, logging, memorising satellites that include (as appropriate) NSS-6 to I701 (Ku).

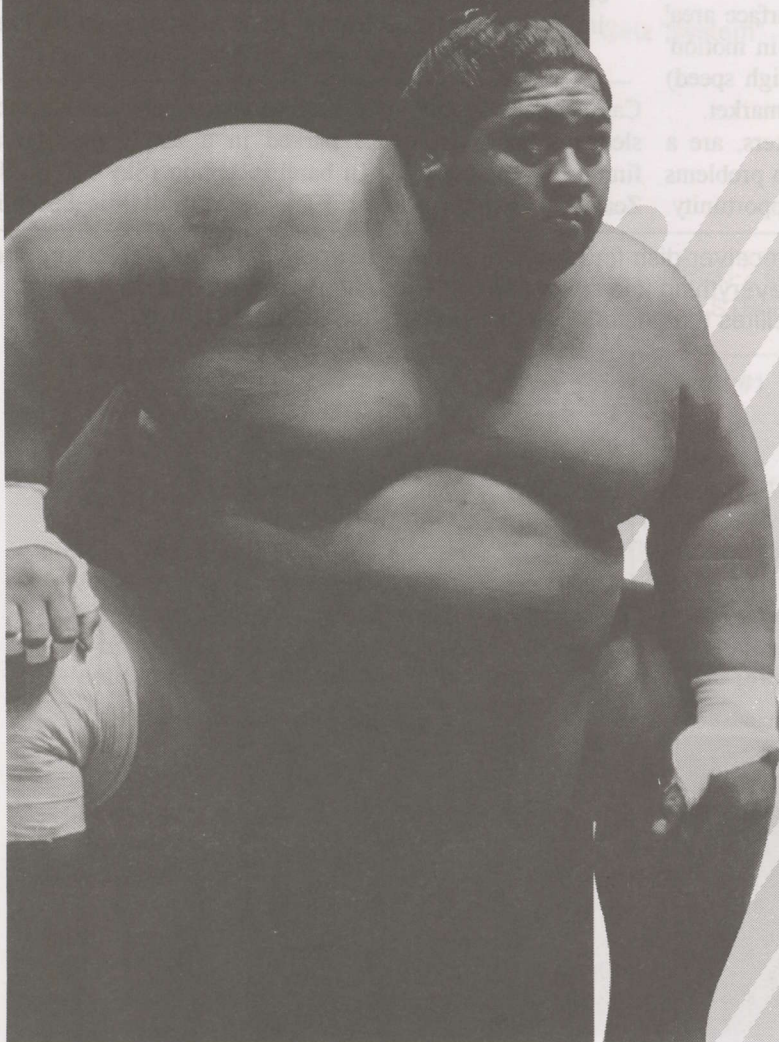
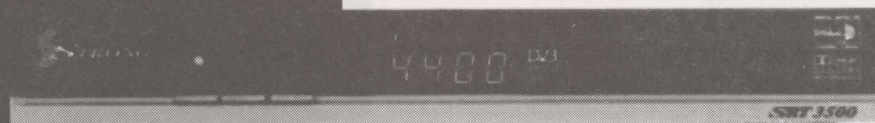
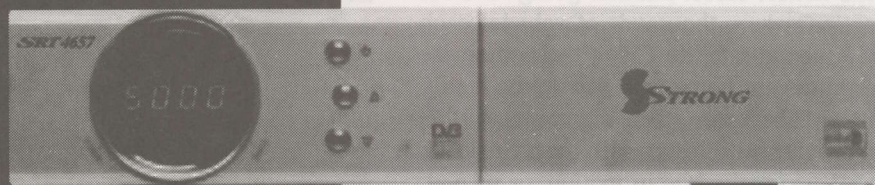


Man and product. Peter Fischer. The 65cm (80cm optional) automatic dish found our 'local' B1 satellite in 51 seconds time from a dead start stowed on the roof. Bet you can't do that yourself!

Camper vans, mobile living and transport vehicles that spend sleeping hours or longer parked in a single position are finding the addition of Ku band reception (Sky NZ in New Zealand, Foxtel/Austar or FTA in Australia) is becoming



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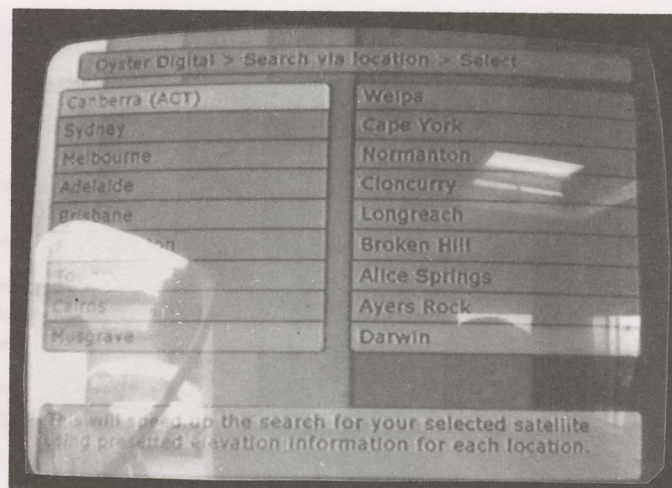
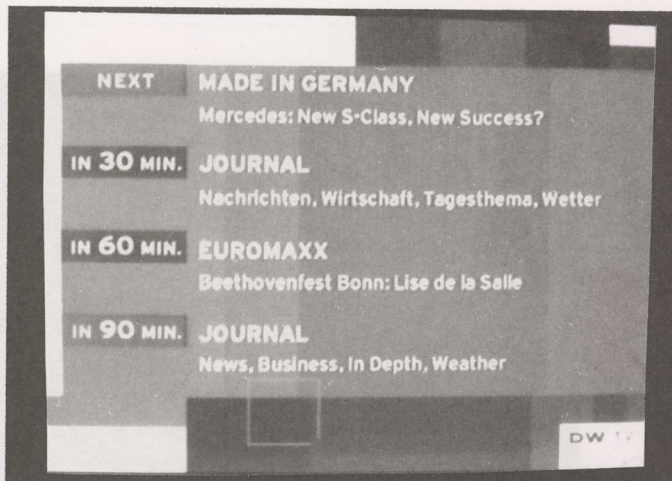
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www.strong-technologies.com





Peter Fischer: "Your B3 signals are very strong here!" Indeed they are, right up there with B1 Sky NZ. The quality of our reception was far better than the glare-riddled images shown here, marred because Peter stood in the open camper doorway and we were fighting sun glare on the (DSE) TV screen.

more and more 'in' to do. What this involves is a suitable antenna (+LNB) somehow mounted on the roof of the vehicle, usually with the ability to be stowed (down) for transport (rolling down the highway with an upright dish is a great way to lose the dish, the roof of the vehicle or both). Therefore it is a mechanical device; lay it down for transport, crank or set it up for reception.

Pricing? Well, for around \$700 some will sell customers an imported (typically from Winegard, USA) 70cm region dish with a tripod mount and a system of hand cranks, either outside at the antenna, or installed through the rec vehicle roof so the hapless satellite watcher can rotate the direction and adjust the elevation. The most interesting part of this

level of installation is that if you put together the parts yourself, you are looking at something under A/NZ\$150 for the parts which makes \$700 an interesting profit level.

There is a more expensive way, of course, which a minor percentage of the market opts to have; full automation. Peter Fischer of SmartSat (Email smartsat@westnet.com.au; www.smartsat.com.au) has pioneered this package. German European bred, in Australia and the Pacific. Peter invested in the development of this package, ending up with the exclusive marketing rights at the end of development. A 65cm dish is standard, a 80cm is optional. When Fischer drove into our SatFACTS parking lot, the dish was stowed on a rental vehicle roof attached with something strong enough to allow him to tool along at 100km/h speeds without losing



What's available with a "mobile-sat" in Australia, New Zealand and the Pacific?

Fisher's demo model operating in our driveway produced B1 and B3. However, think of the system as you would any 65 or 80cm dish system - where they would work mounted on the roof or side of a house, this will function on top of a vehicle. The 'Oyster' dish system reception therefore depends upon where the vehicle is stopped: NSS-6 from most of Australia, AsiaSat 3 (Ku) as well, and of course B1, B3 and C1. And, PAS-8, PAS-2 and I701. The Australians definitely have 'the advantage' for mobile systems and because SmartSat arrives pre-programmed for most regions of the continent, with the 'seek and find' automation filling in the blanks, there could also be a market for using the same system at a fixed abode (the 'ultimate dish-mover')!

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- Cables / RG-6, RG-11; 100m, 305m

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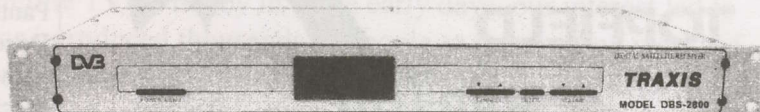


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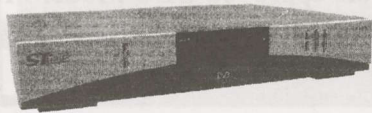
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ST4000IR

FTA & IRDETO Embedded Digital Satellite Receiver:

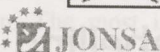
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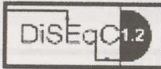
GEOTRACK

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Light Duty 18" & 24"

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D-ST7 2.3Mtr Heavy Duty
D-ST10 3.0Mtr Heavy Duty



STI

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the roof borne system. "No holes", he commented. In New Zealand there is Sky NZ B1 service (requiring of course a Sky authorised NDS CA STB), and four to six (B1) FTA service channels (including TVOne, TV2). In Australia, there is Foxtel, Austar, and the Optus FTA Aurora package. We watched with some amusement as the dish was powered, and it went into a search and locate routine finding B1 from a dead start in 51 seconds. Not too shabby, and the truck was parked at an angle on an uneven driveway. What makes SmartSat worth the several thousand dollars it costs is its' ability to do just that - find virtually any Ku band satellite out there from virtually any location the vehicle stops at. And the angled driveway? The model Peter had installed also does a LNBf polarisation adjustment as part of the automatic routine. One of our staffers commented, "Pity we can't do that as quickly or as automatically with the 7.2 metre behind the van!" Indeed.

Australia has representative stocking distributors from Perth to Queensland, south to Hobart. New Zealand (and even Fiji's C-band would fit this) are basically not-yet-allocated which means there are business opportunities here for aggressive, talented folks with a yen to be a "niche" seller. Sell one of these each week, installed, and retire!

Internet Expands as primary advertising/viewer source

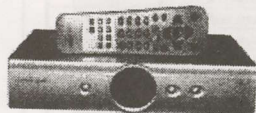
With new-to-broadband (higher speed) Internet connections now topping 2 million a week and growing world-wide, the gates have opened. Everything you have come to know and love about television programming delivery is changing, rapidly.

Nickelodeon has created TurboNick, a FTV (free to view) 24 hour service featuring the likes of "Sponge Bob Square Pants" and "Jimmy Neutron"; advertising supported, of course. Dozens of video firms, including the USA CBS Television network, are rushing into production new programming specifically for Internet viewing. So far in 2005, there has been a 36-fold expansion of video on Internet and it is but the tip of an iceberg likely to explode into full bloom during 2006. "This is where the action is" suggests an AOL executive, "the million channel universe by 2010".

The Internet video rip-tide is placing pressure on all levels of the system, including the local and regional telecoms who must provide "the last mile" connection to homes and businesses waiting for their chance to "tune-in". Consumers are demanding faster speeds, and uncapped download charges (allowing long viewing periods without a financial bill to choke a horse). The "haves" and the "have nots" in the next few years will be defined by those who have "broadband Internet" and those who do not.

For those who do (now more than 50% of all US homes) there is a massive adaptation curve ahead; learning to "surf for programmes" rather than channels or services by brand name. It is an entirely different level of "TV" and the transfer, especially for the past-60 year olds, will not be comfortable nor attractive. There are business opportunities here as never before. The challenge is to identify them!

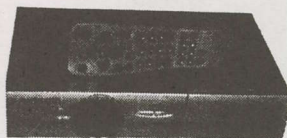
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DSR-192

Compact Digital **Satellite** receiver with Scarts, SPDIF Optical out, Modulator, Diseqc1.2 and loop through connection.

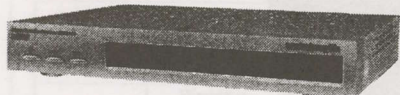
wavelength



DSR-807

Compact Digital **Satellite** receiver with UCAS slot, Scarts, SPDIF Optical out, Modulator, Diseqc1.2 and loop through connection

wavelength DSR-103



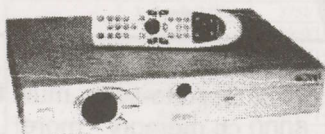
FTA Compact Digital **Satellite** Receiver With Modulator & SPDIF Coaxial output Diseqc1.2 and loop through connection.

wavelength DTR-279



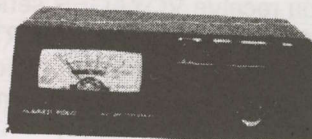
FTA Compact Digital **Terrestrial** Receiver SD Standard Definition Digital Terrestrial Receiver with Philips tuner, modulator, Wide Hot Key, Teletext & Logical Channel

OPENTEL ODS4000IR



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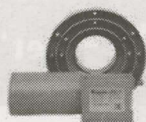
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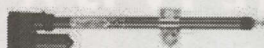
2.3M MESH DISH



C BAND LNB



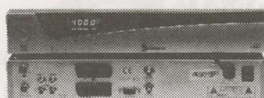
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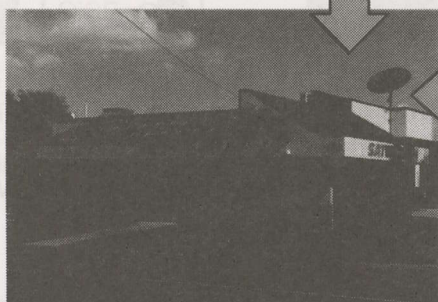
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SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 NOV, 2005

Bird	Service	RF/IF &Polarity	# Program Channels	FEC	Msym
Thom3/78.5	SkyChAust	3695/1455H	up to 3	3/4	5(,000)
	ANT Greece	3672/1478H	1 TV	3/4	13(,333)
	TARBS ME mux	3640/1510H	12TV, 12 radio	2/3	28(,066)
	Ch Nepal	3626/1524V	1	3/4	15(,556)
	Mahar mux	3600/1550H	11TV, 1 rad	3/4	26(,667)
	RR Sat mux	3551/1600H	8TV, 10 radio	3/4	13(,333)
	TVK Cambodia	3448/1702H	1TV	1/2	6(,312)
	TARBS/Th5	3480/1670H	12 TV+radio	2/3	26(,667)
	Thal Global	3425/1725V	up to 7?	2/3	27(,500)
InSat 2E/83	ETV mux	4005/1145V	6+ TV	3/4	27(,000)
	Hyd Dig 2E	3910/1240V	1	3/4	5(,000)
	Kairali TV	3699/1451V	1	3/4	3(,184)
	Indian mux	3643/1507V	3	3/4	19(,531)
	Sky Bangla	3430/1720V	1TV	3/4	6(,000)
NSS6/95E	Ant Pac (Greek)	11.104H-Australia	1 TV	3/4	2(,800)
As2/100.5E	Guangdong TV	4075/1075H	1TV + radio	3/4	6(,000)
	Euro Bouqt	4000/1150H	5TV, 19 radio	3/4	28(,125)
	SatLink	3960/1190H	3TV	3/4	27(,500)
	Reuters News	3905/1245H	1TV	3/4	4(,000)
	WorldNet	3880/1270H	4+/18radio	1/2	20(,400)
	APTN Asia	3799/1351H	1	3/4	5(,632)
	Reuters/Sing.	3775/1375H	1	3/4	5(,631)
	APTN Asia#2	3705/1445H	1	5/6	4(,166)
	Macau MUX	4148/1002V	5TV	3/4	11(,850)
	Dubai MUX	4020/1430V	4+, radio	3/4	27(,500)
	Trace TV	3792/1358V	1	3/4	2(,400)
	BYU-TV	3767/1383V	1 + 20 audio	1/2	6(,530)
	3-ch miniMUX	3752/1398V	up to 3	3/4	5(,640)
	Saudi TV1	3660/1490V	7+tests	3/4	27(,500)
As3S/105.5E	CETV digital	3680/1470H	1+ TV	3/4	26(,670)
	Zee bouquet	3700/1450V	10TV	3/4	27(,500)
	Ch News Asia	3706/1444H	1TV (+)	3/4	6(,000)
	Azto TV	3716/1434H	1TV (+)	3/4	7(,000)
	BTV World	3725/1425V	1TV	3/4	4(,450)
	TVB 8	3729/1421H	1TV	3/4	13(,650)
	Zee Movies	3732/1418V	3TV	3/4	6(,500)
	TV One	3739/1411V	1TV	3/4	2(,8934)
	SAB TV	3743/2407V	1TV	3/4	3(,300)
	Fashion TV	3747/1403V	1TV	3/4	2(,625)
	AAJ-TV	3750/1400V	1TV	3/4	2(,820)
	Airrang TV	3755/1395V	1	7/8	4(,418)
	Now TV +	3760/1390H	up to 10TV	7/8	26(,000)
	Star TV	3780/1370V	7(+)/TV	3/4	28(,100)
	GXTV	3806/1344V	1TV + 3 radio	3/4	4(,420)
	Shaanxi TV	3813/1337V	1TV + 2 radio	3/4	4(,420)
	Anhui TV	3820/1330V	1TV + 2 radio	3/4	4(,420)
	Jiangsu TV	3827/1330V	1TV + 2 radio	3/4	4(,420)
	HLITV	3834/1316V	1TV	3/4	4(,420)
	Star TV	3840/1310H	7(+)/TV	7/8	26(,850)
	Star TV	3860/1290V	5(+)/TV	3/4	27(,500)
	Arabsat MUX	3880/1270H	10+TV, 14Radio	3/4	27(,500)
	Dragon TV	3886/1264V	1 TV	3/4	4(,800)
	Shaandong	3895/1255V	1TV + 6 radio	3/4	6(,813)
	CCTV1	3904/1246V	1TV, 1 radio	7/8	4(,420)
	Jilin TV	3914/1236V	1TV + 2 radio	3/4	4(,420)
	Star TV	3920/1230H	4+ TV	7/8	26(,850)
	CNNI	3960/1190H	8TV, 1 radio	3/4	27(,500)
	StarTV	3980/1170V	6+TV	3/4	28(,100)
	Star TV	4000/1150H	8(+)/TV	7/8	26(,850)
	Sahara digital	4020/1130V	8TV, 1 radio	3/4	27(,250)
	Hubei TV	4035/1115H	1TV + 2 radio	3/4	4(,420)
	Tianjin TV	4046/1104V	1TV + 2 radio	3/4	5(,950)
	Sichuan TV	4051/1099H	1TV + 1 radio	3/4	4(,420)
	Qinghai TV	4067/1083H	1TV + 2 radio	3/4	4(,420)
	Hunan TV	4082/1068H	1TV + 1 radio	3/4	4(,420)
	Fashion/HK-Asia	4088/1062H	1TV	3/4	2(,626)
	Pakistani TV	4091/1059V	4TV, 1 radio	3/4	13(,333)
	Sun TV	4095/1055H	1	3/4	5(,554)
	PTV National	4106/1044V	1TV, 1 radio	3/4	3(,333)
	TVB8 Mux	4111/1040H	4 TV	3/4	13(,650)
	Indus News	4115/1035V	1	3/4	3(,331)
	CCTV bqt	4129/1021H	4 TV, 4 radio	3/4	13(,240)
	Zee Bqt #2	4140/1010V	8(+)/TV	3/4	27(,500)
	Henan TV	4166/984V	1TV + 8 radio	3/4	4(,420)
	Fujian TV	4180/970V	1TV + 2 radio	3/4	4(,420)
	Jiangxi TV	4187/963V	1TV + 2 radio	3/4	4(,420)
	Liaoning TV	4194/956V	1TV + 2 radio	3/4	4(,420)
Cak1/107.5	Indovision (S-band)	2.535, 2.565, 2.595, 2.625, 2.655	33(+)/TV	7/8	20(,000)
T'Korn/108E	IndoBqt	3460/1690H	up to 6	3/4	28(,000)
C2M/113E	TPI	4185/965V	1	3/4	6(,700)
	TVE Asia-Africa	4160/990H	1	3/4	5(,632)
	Anteve	4144/1006V	1	3/4	6(,510)
	Kabelvision Mux	4080/1070H	7+ TV	7/8	28(,125)
	Indostar	4074/1076V	1	3/4	6(,500)
	Satelindo	3935/1215H	1	3/4	6(,700)
	Bali TV	3926/1224H	1	3/4	4(,208)
	Indo MUX	3880/1270H	3+ TV	7/8	28(,121)
	TVRI	3765/1385H	1TV	3/4	5(,555)

Receivers and Errata
CA (#1, 3); FTA audio #2
Late July 04: room for more (FTA)
CA + 23FTA(A1TV, IRB3, Vision Norge, Pakistan)
New 03/03; FTA
Thai + Indian services; FTA inc. Vibe TV, Sindh TV
3TV, 5radio inc. Hellas TV Greece FTA
FTA
3FTA: TV5, VTV4, ATN Bangla
FTA (reaches SE Australia)
Several ETV now here; wide beam
SCPC, OK E. Aust. wide beam
SCPC, OK E. Aust wide beam
corrections 12/02
New - November 2002
(still) FTA 11-04; was 11.083H
July 04: FTA
FTA TV + radio; moving to 3760H before 31-12
Real Madrid (V769, A770) English FTA
Was 3923H; sometimes FTA
FTA; multiple audio services V2360, A2320
Sometimes FTA; also 3895Vt
FTA & CA
FTA and CA - NASA reports included
5 chs TV, FTA, some tests
FTA ; Dubai Sports Ch some English, soccer-
new here Dec 2004; Euro-French music videos
Increased coverage; great variety audio chs(03-05)
Sun-TV, Surya TV, KTV (FTA)
FTA MCPC; Yemen, MBC EUROsport tests
replaces analogue same freq. V33, A32
Now SECA 2 CA (10-04); Radio Aust. Eng. A2011
English + V1160, A1120; 525, 625 versions
Was parallel to 3640Hz analogue (now gone)
Conax CA, all Hindi films
Also reported 3.333, 3/4 October 2005
SAB may no longer here here; moved to NSS-6?
new frequency October 2005
New April 2005; English, urdu
FTA SCPC; New PIDs V3601, A3606 June 2003
CA + FTA; Euro bouquet moving here (late 2005)
NDS CA (Pace DVS211, Zenith)
Guangxi TV; was As2
Was As2
Was As2
Was As2
Was As2; HeiLong
NDS CA (Pace DVS211, Zenith)
NDS CA (Pace DVS211, Zenith)
New April 2004: link to Optus B3 Globecast
Shanghai
Apparently Mongolia
Star Sports Asia (+), FTA NTSC; V514, A670 (10-04)
PowVu CA; new SR Apr 29; CNN radio FTA
NDS CA; Star News India FTA VPID 514, APID 648
NDS CA w/ 4(Chinese) FTA
New Sr September 2004
Was As2
new December 2004
Was As2
Was As2
Was As2
New July 2005
new Sr, channels, Nov 2003
"History Channel" - SCPC, some English
MATV Ch Movies now Irdo 1
Hindi (+ "Plus"); day parts
moved from 4115
Now SECA 2 CA (10-04); 1 occ. FTA (varies)
Was As2
Was As2
Was As2
Was As2
NDS CA using RCA/Thomson,
Pace IRDs; 2.535 has 2 FTA
also 3586H/17.500, 3496H/19.615
FTA SCPC; NT/NC only
New August 2003
change from 4055V, FTA SCPC
also try 3500H, 27.000, 3/4, strong NZ
FTA (new 06-03); V2201, A2202
test card - only - reported
FTA, may not be active full time
FTA; Sr change 01/03; erratic
bounces btwn FTA and CA; unreliable (12-04)

Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
	Brunet/Sing	3733/1417H	1TV	3/4	6(.000)
	SCTV	3726/1424V	1TV	3/4	6(.620)
	RCTI	3473/1677H	2	3/4	8(.000)
As4/122E	CCTV internal	4100/1050V	6	3/4	27(.500)
Jc3/128	Miracle Net	3996/1154V	3 up to 6	5/6	22(.000)
	Asian bqt	3960/1190V	up to 8	7/8	30(.000)
Ap6/134E	Multiple	4140/1010V	up to 8	7/8	27(.500)
T18/138	Tests	3460/1690V	8	3/4	30(.000)
	LTV Laos	3804/1346V	1		
Am3/140	STS +	3731/1419R	1	3/4	3(.200)
Jc2A 154	BYU-TV	3915/1245V	1+ 20 languages	3/4	4(.166) (?)
MeasSs2	Astro Mux	11.602H	up to 17TV	3/4	41(.500)
	VTV MUX	11.522V	3TV	3/4	9(.766)
B3/152	AuroraBiz	12.407V	4 TV, 10 radio	2/3	30(.000)
	UBI/tests	12.425V	up to 13 TV + radio	3/4	22(.500)
	Globeam 2	12.525V	13 TV, 8 radio	2/3	30(.000)
	Globeam (feeds)	12.550-555V	1TV	3/4 & 2/3	6(.110/.670)
	Globeam	12.564V/T13	2+ TV	2/3	30(.000)
	UBI/tests	12.613H/T14L	11+TV	3/4	22(.500)
	UBI/tests	12.640H/T14U	11+TV	3/4	22(.500)
	Globeam 1	12.658V/T7	14TV, 15 radio	2/3	30(.000)
	UBI/tests	12.674H/T15L	11+TV	3/4	22(.500)
	UBI/tests	12.701H/T15U	11+TV	3/4	22(.500)
	WA ABC	12.702V	1 TV, 1 radio	7/8	14(.288)
	WA SBS	12.720V	4TV, 2 radio	5/6	12(.600)
	WA GWN/WIN	12.738V	2TV	7/8	14(.295)
C1/156E	Internet tests	12.288V/T1L	no regular TV	1/2 - 7	28(.650) (?)
	Aurora	12.324V/T1U			
	Pay TV	12.365V/T2	11TV, 2 radio	3/4	27(.800)
	Aurora Home	12.407V/T3	5 TV, 13 radio	2/3	30(.000)
	Pay-TV	12.447V/T4	5TV, 4 data	3/4	27(.800)
	Pay TV	12.487V/T5	3+ TV, data	3/4	27(.800)
	Aurora 2	12.527V/T6	7TV, 20 radio	3/4	30(.000)
	Pay-TV	12.567V/T7	10 TV	3/4	27(.800)
	Pay-TV	12.607V/T8	10 TV	3/4	27(.800)
	Pay-TV	12.647V/T9	10 TV	3/4	27(.800)
	Pay-TV	12.692V/T10L	6TV, 27 radio	1/2	28(.650)
	Aurora MUX	12.728V/T10U	4TV, 17 radio	1/2	24(.450)
	Austar	12.305H/T11	6TV, 24 data	3/4	30(.000)
	Pay-TV	12.358H/T12	10 TV	3/4	27(.800)
	Pay-TV	12.398H/T13	10 TV	3/4	27(.800)
	Pay-TV	12.438H/T14	6TV, 3 data	3/4	27(.800)
	Pay-TV	12.478H/T15	10 TV	3/4	27(.800)
	Pay-TV	12.518H/T16	10 TV	3/4	27(.800)
	Pay-TV	12.558H/T17	10 TV	3/4	27(.800)
	Pay-TV	12.598H/T18	10 TV	3/4	27(.800)
	Pay-TV	12.638H/T19	10TV, 30 radio	3/4	27(.800)
	Pay-TV	12.688H/T20	11TV	3/4	27(.800)
B1/160	7 Central DTV	12.365H	1TV	3/4	5(.100)
	Occ. feeds	12.380H	1 TV - *	3/4	6(.111)
	Occ. feeds	12.384V	1 TV - *	3/4	6(.111)
	Net 7 service	12.397H	1	3/4	7(.200)
	Imparja mx	12.379H	2TV + 8 radio	3/4	5(.424)
	7 digital feeds	12.397H	1TV	3/4	7(.200)
	Feeds to NZ	12.411V	1 TV	3/4	6(.111)
	SBS Mux	12.420H	3+ TV, 2+ radio	5/6	12(.600)
	TVNZ DTH	12.456V	5+TV	3/4	22(.500)
	TVNZ Tests	12.483V	up to 11TV	3/4	22(.500)
	Sky NZ	12.519/546V	7TV/7TV	3/4	22(.500)
	Sky NZ	12.581/608V	6TV/6TV	3/4	22(.500)
	Sky NZ	12.644/671V	9TV	3/4	22(.500)
	ABC HDTV	12.610H	5TV	7/8	14(.3288)
	Sky NZ	12.707/734V	8+TV	3/4	22(.500)
P8/166E	ABS-CBN	12.575H	4+TV, 4+ radio	2/3	13(.845)
	JEDI/TVB	12.686H	11+ TV	3/4	28(.126)
	ABC A-P	4180/970H	2TV, 2 radio	3/4	27(.500)
	Disney Pac	4140/1010H	typ 6 TV	5/6	28(.125)
	Taiwanese MUX	4080/1070H	12+ TV	5/6	30(.000)
	NHK Joho	4060/1090H	7TV, 1 radio	3/4	26(.470)
	FOX Mux	4040/1110V	up to 5TV	7/8	26(.470)
	NET +	4121/1029V	1 TV	3/4	4(.774)
	ESPN USA	4020/1130H	8+TV, data	3/4	26(.470)
	Discovery	3980/1170H	8 typ.	3/4	27(.690)
	CalBgt/Pas8	3940/1210H	up to 3+ FTA	7/8	27(.690)
	CNBC HK	3900/1250H	up to 7TV	3/4	27(.500)
	FilipinoMUX	3880/1270V	up to 8TV+radio	5/6	28(.694)
	TaiwanBgt	3860/1290H	12TV + 30 r	5/6	28(.000)
	CCTV Mux	3829/1321H	up to 4 + 1 radio	3/4	13(.240)
	TVBS-N	3836/1314V	1FTA, 4+ CA	3/4	22(.000)
	EMTV PNG	3808/1342V	1 + 2 radio	3/4	5(.632)
	CNNI	3780/1370H	3, up to 5 TV	3/4	25(.000)
	Discovery Asia	3764/1386V	Up to 6 TV	3/4	19(.850)
	MTV	3740/1410H	8	2/3	27(.500)
P2/169E	WA Mux Pv	12.281V	3+ TV, radio	2/3	27(.500)
	Arlang TV	12.401V	1TV	3/4	4(.400)
	ABS-CBN	12.575H	4TV, 2 radio	2/3	13(.845)
	Test mux	12.715H	6+ TV	2/3	30(.000)
	TARBS feeds	4090V/1060V	9TV + radio	3/4	21(.000)
	BBC SCPC	3986/1164H	1TV	1/2	5(.700)

Receivers and Errata

FTA ; Singapore 23hrs, Brunei 1 hr; Brunei V1200 was on 4048V; New Caledonia, parts of Australia FTA SCPC; Australia, New Caledonia, some Eng. Irdo 2; 4060V HDTV CA; also try 4020V PowerVu; some FTA (Ch. 1 & 3)

CA & FTA NTSC: Japan, Taiwan (ApStar 6: also 4180V same #s; analogue also) also try 3660/3540VVt, Sr 30.000, 3/4; some FTA

VPID 512, APID 4112

North beam; also try 3875R, 12.475, 1/2

Strong NZ & Australia; may now be 1/2, 6.525

Aust East beam - 3 FTA + 14 CA

WA only? Skew path, intended Asia

differs from 12.407 C1; **tune ch FTA; NZ+Au**

T11/lower testing late May 2005

NZ + Au, FTA Mcript CA

occ feeds, NZ + Au, recently 12.553V

AMTV, Healing only FTA svcs now here

High performance beam; not NZ; new PIDS 10-05

High performance beam; not NZ; new PIDS 10-05

NZ + Au (Mcript, PowVu capable)

High performance beam; not NZ; new PIDS 10-05

High performance beam; not NZ; new PIDS 10-05

ABC WA tests, FTA

SBS, radio tests WA FTA

Irdo 2 V2 CA, tests (GWN, WIN)

Now on Australia + NZ beam; SCPCs

not currently in use

Tests; SBS-NDS CA, others FTA when here

NZ (90cm) + Australia (**Only C1 svc left on NZ**)

Australia NA only (leakage to Norfolk, New Cal)

Australia NA only (leakage); 9-Net x 3 widescreen

Arrow radio (still here), tone FTA

Pay-per-view movies; CA

Pay-per-view movies; CA

Pay-per-view movies; CA

ABC for Foxtel/Austar, previously 12.288V changes September 2005

Austar inter, **Expo FTA**

NDS CA + Mcript; CA

CA, subscriptions available Australia, Norfolk

Sky News active; 'Help x 2' **FTA**

CA, subscriptions avail Au, Nrlk; **TVSN FTA**

CA, subscriptions available Australia, Norfolk

"Home"CA, subscription available Australia, Nrlk

CA, subscriptions available Australia, Norfolk

CA, subscription available Australia, Norfolk

CA, subscription available Australia, Norfolk

Central beam; Freq change 08-05

* - plus 12.451H, 12.460H

* - plus 12.293V, 12.402V, 12.411V

Full schedule less commercials - links, may be CA

PIDs vary; also try 12.360, 12.370

occ digital feeds; typ fla

Often NTSC; USA-Australia-NZ

Also 12.437H, 12.456H same params; HDTV+WS FTA 7 channels (TVNZ x 4); +Maori_DW, CCTV9

Testing late June; 16:9 added late July

NDS CA, subscription available NZ

NDS CA, subscription available NZ

NDS CA, subscription available NZ

also see 12.626, 643, 670, .688, & .706H

NDS CA, subscriptions available NZ

CA

June 2002-Irdo-2 CA

Dateline west; also east PAS2, 3901V

PowVu CA

Tests - CA service announced

PowVu CA & FTA; subscription available

was PAS-2, previously 3992Vt; **feeds FTA**

NET25 + FTA; new PIDS April '03; reload

PowVu CA; ch 11 DCP-CCP bootstrap; audio **FTA**

PowVu/CA (some audio **FTA**)

PowVu CA & FTA (EWTN + CBS + TBN +)

NDS CA (6 channels); one test card occ FTA

Myx FTA V1960, A1920 + radio FTA

Mixed **FTA** & CA; STC gone (CA)

PowVu FTA, replaces PAS-2 svc

Difficult because of CCTV cross pole

PowVu CA

PowerVu; some audio **FTA**

PowerVu; Asian MUX; new parameters Nov '03

8 **MTV China FTA V289, A290**; rest CA

PowVu CA, WIN, ABC NT, SBS; status unknown

Test - may not stay permanently

Temp **FTA**; subs Aust 011-800-2270-0722

initially with 6 NTSC colour bars

Occ **FTA** (Chile +); BIG power reduction Nov 03

BBC World moved here January 2005

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Step Three: Connect it to our 2.4/50 'S-band' Range Extender'

Step Four: Replace the 'deaf' 2.4 GHz receiver with virtually any L-band receiver tuning 1250-1334 MHz.

Switching from 2.4 GHz 'deaf' receivers to L-band receivers through our 2.4/50 Range Extender typically adds 92 dB of circuit gain! [2]

1/ Yagi models YA2409, YA2423 from Merit CCTV:
www.meritcctv.co.nz

2/ See the 'numbers' page 28, SatFACTS # 134; switching to L-band receivers adds the power equivalent of RAISING 2.4 transmitters to 11,200,000 watts radiated!

30km LOS paths are commonplace using analogue video modulation at 2.4 GHz. Obstructed paths can handle 50+ dB of path loss and still function perfectly! **THIS** is the answer.

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Far North New Zealand**

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Bird	Service	RF/IF & Polarity	# Program Channels	FEC	Msym
(PAS2/169E)	Adventists.tv	4040/1010H	1	2/3	5(900)
	Feeds	3868/1182H	1	2/3	6(620)
	Feeds	3939/1211H	2 (typ NTSC)	2/3	6(620)/7(498)
	Cal PowVu	3901/1249H	up to 8	3/4	30(800)
	HK bouquet	3850/1300H	up to 8	2/3	24(900)
	Korean Bqt	3771/1379H	1	3/4	6(510)
1804/174E	IPSTAR	12.619H	1	2/3	25(220)
	Tests-NZ beam	12.646H	1	3/4	22(418)
	RFO Poly	4027/1123R	1TV	3/4	4(566)
1701/180E	TNTV	11.060&11.514V	9	3/4	30(000)
	TVRFO	11.136V, 11.174V	6+TV, 3+ radio	3/4	23(149)
	Canal+Sat	11.610H	16TV, 1 radio	3/4	30(000)
	PBS	12.648HH	16TV possible	3/4	28(066)
	TVNZ/BBC	4186/964RHC	1	3/4	5(632)
	TVNZ	4178/972RHC	1	3/4	5(632)
	AFRTS DTS	4175/975L	3 TV, 3 radio	2/3	3(680)
	TVNZ/Aptn	4170/980RHC	1	3/4	5(632)
	Fiji Sky Pacific	4095/1055LHC	6TV + future radio	3/4	16(505)
	Fiji Sky Pacific	4055/1095LHC	6TV + future radio	3/4	16(505)
	TVNZ/feeds	4052/1098RHC	1	3/4	5(632)
	TVNZ feeds	4044/1106R	1	3/4	5(632)
	NZ Prime TV	4024/1126L	1	2/3	6(876)
	NBC to 7 Oz	3960/1190R	1	7/8	6(447)
	TBN Mux	3927/1223R	3TV	2/3	9(100)
	WorldNet	3886/1264R	1TV, 37 radio	3/4	25(000)
	Ioarana	3772/1378L	1	3/4	4(566)
	NASA TV	3854/1296R	1 TV	3/4	2(000)
	TVNZ	3846/1304R	1	3/4	5(632)
	NBA (Barker) Ch	3803/1347R	1	3/4	6(111)
	USA feeds	3749/1401R	4?	?	26(400)
NSS-5/177W	Pacific IP Data	3763/1387R	none-data	3/4	27.5
	BYU-TV	4185/965R	1TV, 20+ audio	1/2	6(525)
	IPSTAR Tests	12.691V	8 TV	5/6	17(600)
	Russian TV tests	12.744V	2 TV	3/4	3(977)

Receivers and Errata

New December 2003; 24/7 "Hope Chs."
FTA (occ sport); also try 3863, Sr6.100
FTA-typ NTSC-occ sport, live Shuttle
PowVu CA + FTA (includes BBC-W 05-05)
was 4148V; some FTA
Korean MUX, reload 12-04; new Sr
Tests, late May start; also 12.646H
Testing possible data links; June 2003
SE spot beam; was 4027LHC
east spot; 107V + r each, vertical pol.
FTA 11.136 Tahitian beam, 11.174 west beam; 12/04
1+ FTA, MediaGd "2"; + 10.975 weaker
Testing Fiji region pay-TV (MDS) package (Oct '04)
DMV/NTL early vers. occ feeds, typ ca
DMV/NTL early vers., occ feeds, typ ca
'DTS Direct to Sailors; audio previously FTA - gone
DMV/NTL early vers. occ feeds, typically ca
Nagravision CA (> Feb 1, 2005) New PIDS
All now (including Fiji 1) CA; 7 Feb, 2005
DMV/NTL early vers., occ feeds, typ ca
SCPC, mixed CA and FTA feeds
PowVu CA; Auckland net feeds
CA, Leitch encoded
Church Ch (1560), TBN (1760), JCTV (1860) W hemi
New PIDS Dec 03 very strong NZ, Pacific
FTA SCPC; East Hemi Beam-Tahiti
24/7 live NASA - West Hemi bm (can be difficult!)
SCPC, mixed CA & FTA, feeds
NBA feeds - probably CA - new Nov 2003
16-QAM (not MPEG-2 compatible)
Data only but useful for dish alignment
Global beam - requires sizeable dish
CA Tests - Taiwan TV; data coming?? (NZ beam)
Tests - may not last (May 2005); NZ bm; PKVS, REN

MPEG-2 DVB Receivers: (Data here believed accurate; we assume no responsibility for correctness!)

AV-COMM R3100. FTA, excellent sensitivity (review SF May 1998); new version Sept. '99. AV-COMM P/L, 61-2-9939-4377.

AV-COMM Tiny Tot. FTA, 12Vdc operated, palm sized, low power consumption; review SF#120. Contact # above.

Coship 3188C. Review SF#107. Blind search FTA rcvr; works well. Phoenix Technology Group (www.phoenixsatellite.com.au) (Irdeto 2 as well as FTA versions)

Divitone: "Left-handed" review SF#115; does "code key" entry. Available <http://www.satmax.ws>

eMTEch eM-100B (FTA), eM-200B (FTA + Clx2), eM210B (FTA + 2xCl + positioner); KanSat 61-7-5484 6246 (review SF#89)

Fortec Star Lifetime. Two versions, both blind search, code-key programmable, one X 2 Cl. Review SF#119. www.aDigitalLife.com

Humax ICR1 5400 (Z). Embedded Irdeto + 2 CAM slots; initial units had NTSC glitch, now fixed. Widely available; new software avail 04-04, SF#76.

Humax IRCI 5410 (Z). Adaptable version capable of holding multi-CA systems (SF#98, 99). Widely available; original importer Sciteq (www.sciteq.com.au).

Hyundai-TV/COM. HSS100B/G (Pacific), HSS-100C (China) FTA. Different software versions; 2.26/2.27 good performers, 3.11 and those with Nokia tuners also good; later 5.0 not good.

Hyundai HSS700. FTA, PowerVu, SCPC/MCPC. Review SF March 1999. Kristal Electronics, 61-7-4788-8902.

Hyundai HSS800CI. FTA, Irdeto (with CAM) + other CA systems, PowerVu, NTSC. Kristal Electronics, above; review SF#63.

INNNOVA IDS3088. Review SF#111. Blind search FTA receiver. High quality IRD; available Phoenix Technology Group, and Satmax (<http://www.satmax.ws>).

ID Digital CI-24 Sensor. New August 2003; new lower noise tuner, extra sensitivity; CI Interface slot Irdeto 1 & 2; review SF#109. Sciteq 61-8-9409-6677.

KSF-570 FTA digital receiver, import, KSC-570 adds CI x 2 (no test or user results available). Asoft Limited, 64-4-234-1096

KSC-N550H2 'Premium Dual DVR' digital receiver (no test or user results available). Asoft Limited, 64 4 234 1096

MediaStar D7.5. New (May 00) single chip FTA; review June 00 SF. MediaStar Comm. Int. 61-2-9618-5777

MediaStar D10. FTA and Irdeto embedded CA. VG receiver; see review SF#96, August 2002. Contacts immediately above.

MultiChoice (UEC) 660. Essentially same as Australian 660, not grey market contrary to reports. Sciteq tel 61-8-9306-3738

Nokia "d-box" (V1.7X). European, FTA, may only be German language, capable of Dr. Overflow software. SF#95, p. 14.

Nokia 9200/9500. When equipped with proper software, does Aurora, originally did pay-TV services provided software has been "patched" with "Sandra" or similar program. See SF#95, p. 14, SF#96 p. 15. SatWorld 61-3-9773-9270 (www.satworld.com.au)

Pace DGT400/DVR500. Originally Galaxy (Now Foxtel+Austar). Irdeto, some FTA with difficulty (Foxtel Australia 1300-360818). UECs replaced.

Pace "Worldbox" (DSR-620 in NZ). Non-DVB compliant NDS CA including Sky NZ, no FTA; similar "Zenith" version (see SF#115, p. 15).

Phoenix 111, 222, 333 models (no longer produced): Service, backup - Phoenix Technology Group 61 3 9553 3399; www.phoenixsatellite.com.au

Pioneer TS4. Mediaguard CA (no FTA), embedded Msym, FEC, only for Canal+Satellite (AntenneCal ++687-43.81.56)

PowerVu (D9223, 9225, 9234). Non-DVB compliant MPEG-2 unless loaded with software through ESPN Boot Loader (see below). Primarily sold for proprietary CA (NHK, CMT etc). For service only - call Scientific Atlanta 61-2-9452-3388. For revision model D9850, see Scientific Atlanta (below).

PowTek. Blind Search Chinese sourced, field tests rate it highly. Source jason@adigitalife.com

Prosat 2102S. FTA SCPC/MCPC, NTSC/PAL, SCART + RCA. Sciteq 61-8-9306-3738.

SatCruiser DSR-101. FTA SCPC/MCPC, PowVu, NTSC/PAL. (Skyvision Australia 61-3-9888-7491, Telsat 64-6-356-2749); no longer available.)

SatCruiser DSR-201P. FTA SCPC/MCPC, PowVu, NTSC/PAL, analogue, positioner - (Skyvision - see above); no longer available.

SATWORK ST3618. Blind search FTA receiver. Fast search, problems, especially in "memory-filing" system; review SF#111. Available DMSi at tim@dmsiusa.com.

SATWORK ST3688. Blind search, 3000+ ch memory, multi-format RF modulator; improved version 3618. Review SF#113; available DMSi (above).

Scientific Atlanta D9223, D9234, D9225; Orig. PowerVu, superceded Dec 2003 by D9850. Commercial receiver, available TVO 61-2-9281-4481, John Martin

Strong Technologies SRT2620. SCPC, MCPC FTA, exc sensitivity, ease use, programming. Review SF#91 (ph. below).

Strong SRT 4600. SCPC, MCPC, PowerVu; exc graphics, ease of use, review SF#64. Strong Technologies 61-3-8795-7990.

Strong 4800. SCPC, MCPC, embedded Irdeto+ CAM slots, does code-key with additional software, Aurora. Strong Technologies 61-3-8795-7990.

Strong 4800 II. SCPC, MCPC CAM slots x 2 for Aurora +, Zee, Canal +, code key with additional software. Strong Technologies (above); review SF#103.

Strong 4890. SCPC, MCPC, 30Gb PVR, 2 CAM slots, DiSeqC 1.0, 1.2 (review SF#84), does code key with additional software; Strong Technologies, # above.

UEC Atlas/Titan (1000). New July 2003, replacing DGT400 for Austar. No SCART, L-band loop; also available Rural Electronics 61-2-6361 3636.

UEC642. Designed for Aurora (Irdeto), approved by Optus; w/hw software, C-band FTA; faulty P/S. Norsat 61-8-9451-8300.

UEC660. Upgraded UEC642, used by Sky Racing Aust., Foxtel, limited FTA. (Nationwide - 61-7-3252-2947); P/S problems.

UEC700/720. Single chip Irdeto built-in design for Foxtel; unfriendly for FTA. Power supply problems, seldom sold to consumers; propensity to fall off back of trucks.

Voyager. Two models (08-05); one FTA auto scan, 6000 ch memory; one multi-CA format CAM. Satlinknz.co.nz

Winersat DigiBox 200. C + Ku basic receiver but includes Teletext for NZ TVOne, 2 VBI. Satlink NZ, fax 64-9-814-9447; long term teletext problems (loses TT).

"X" Digital. When modified with "aftermarket" Internet software, does Aurora and other V-1 CA without card; review SF#119. Strong Technologies (61-3-8795-7990).

Accessories:

Aurora smart cards. MCRYPT (Irdeto V2) cards now available (Jan 2005), Sciteq 61-8-9409-6677.

PowerVu Software Upgrade: PAS-8, 4020/1130Hz, Sr 26.470, 3/4; pgm ch 11 and follow instructions (do not leave early!)

PowerVu (Pacific) repair service: Cable & Sat Svcs, Darius West, 61-2-9792-1421 (Email darius@cases.net.au)

WITH THE OBSERVERS

AT PRESS DEADLINE

InSat 4A (12 C + 12 Ku), to 83E, rescheduled launch of 16 December. B3 T123/12.563H relabeled 'Service G' (was 'Telepace'), CA. T5/12.525V, 'IPTR', also now CA. Globecast 'DMC' aired Euro medical conference late evening 4 November, disrupting Thai Buddhist service which was moved to Sigaram 2; most confusing!

Launches: iPSTAR's super satellite (also referenced as Thaicom 4), designed primarily to provide two-way Ku medium to high speed Internet connections throughout Asia and Pacific (including New Zealand) officially became operational at 118E October 26. Much delayed Telekom 2, C-band only, scheduled to launch via Ariane 5 vehicle 10 November, also to 118E where it replaces out-of-service Palapa B4. Projected footprints are 'not kind' to Australia, NZ although 17 of the 24 transponders will be leased to non Indonesian firms.

ApStar 6/134E: "CCTV1, Qinghai 3868H; FTA". (CE) "Toy Channel is one of several new ones: 4140V, Sr27.500, 7/8 V3160/A3161". (Fantasy)

AsiaSat 2/100.5E: "FTA car racing feed 3816V, Sr 6.200, 3/4 V308/A256". (B.Richards, SA) "Nile News (channel) FTA 3660V, Sr 27.500, 3/4 V2432/A2433". (Pedro) "Satlink Israel soccer feed FTA 3697V, Sr 5.632, 3/4 V308/A256". (B.Richards, SA) "NZ-S.Africa Cricket feed FTA 3967V, Sr 6.110, 3/4 V308 A256". (B. Richards, SA)

AsiaSat 3S/105E: "Fashion TV has been jumping around (for example 4088H for a short while) but appears to have landed on 3745V, Sr 2.625, 3/4 V651/A652 FTA as of November 7". (SW) "Test cards 3600V, Sr 13.260, 3/4 FTA". (Pony) (Editor's note: Also reported, briefly, 3600H) "English language version Radio Australia 3700V, Sr 27.500, 3/4 with APID 2011, FTA". (Brother) "Indus Plus News new on 3760H, Sr 26.000, 7/8 V1110/A1111". (Fantasy)

Intelsat 701/180E: "France 'O' Channel FTA 11.174H, Sr 23.150, 3/4 V308/A408". (B.Richards, SA)

Optus B1/160E: "Astralinks feed Channel 'V' 12.380H, Sr 6.670, 3/4 V308, A256". (B.Richards, SA)

Optus B3/152E: "All UBI PIDs changed on about the 20th of October on 48 programming channels; only those on T11L/12.425H remained the same. The signal on T14/12.613H remains inverted - a form of simplistic anti-access technology. Turkish SINT now CA, leaving TRT1 on channel 31 (12.613H) as UBI's only FTA Turkish service. Three channels for Iranians (12.425H), scheduled to revert to CA 7 October remained FTA until 14th. UBI's channel 65 has English/Greek text reading: 'Sigma - the highest rating and most popular TV channel from Cyprus. Here and exclusive to UBI WORLD TV, within days'. And, UBI added 14 new (FTA initially, then CA) radio channels, mostly Arabic and Turkish". (IF, Qld.) "Globecast ran

T13/12.564V FTA (no Mcrypt nor SA) during mid-October awhile the SA CA encryption package (same code #) appeared on 12.555V SCPC (6.669, 3/4). The same SA code was also found on 12.267V (6.669, 3/4) days later. When CA returned to T12, it was Mcrypt only. Friday October 21, 'preview feed' for Net 10 12.286V (again, 6.669, 3/4), followed next two days with auto racing ('Gold Coast Indy 300'), all FTA." (AI, NSW) "UBI's latest channel shuffling, affecting 58-65, is as follows: 58/Planeta TV (Bulgarian), 59/MKTV (Macedonian), 60/NTV Hayat (Balkan), 61/Alpha (Greek, alternates FTA and CA), 62/MAD TV (Greek, alternates FTA and CA), 63/Graphic promoting new Greek ch, 64/same graphic as 63, 65/graphic promoting 'Sigma'. 66/CYPS (Cyprus), 67/ Graphic of channel line-up". (NS, Victoria)

Optus C1/156E: "On October 28th Optus made technical changes to all of the pay-TV transponders except T4/12.447V and T5/12.487V. For example, there are now 2 loading tables for T10/L (Foxtel ABCs), T11 (Austar Interactive) and T19 (which now includes 30 radio channels). It took two consecutive loads to get all of these straight, all MCPCs except T4 and T5 now split into two loading tables while T10L, T11 and T19 now split at different channels to the original list (prior to 28 October). Because of changes, I expect many IRDs will now have difficulty loading these MCPCs and they definitely will behave differently. Why the change? Perhaps somehow related to NDS receivers, or to attempt to make the data streams incompatible with (piracy oriented) Dreambox products." (IF, Qld)

PAS-2/169E: "Bloomberg has moved off of California Bouquet (3901H), now only on As3S (3760H, Sr 26.000, 7/8)". (S.Johnson, NZ)

PAS-8/166E: "BBC World for Japan missing from 3940H". (Ernest) (Editor's note: Actually, some technical problems - still there V2460/A2420.)

Thaicom 3/78.5E: "Daystar has returned to 3640H, FTA, V2711/A2712; CasioNet now 3640H, V3002/A3003". (DB)

Soapbox: "Star TV has finally given up on their home market; Hong Kong. They have done an exclusive deal with PCCW's IPTV service and are in the process of telling those with Star TV (AsiaSat) boxes that Star World will only be available from PCCW from January. Most of the existing boxes, probably not many more than 1,000, will become useless, not viable for any other service. Some paid as much

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. **Photos of yourself, your equipment** or off-air photos taken from your TV screen are **welcomed**. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed or DVD format reception directly to SatFACTS and we will photograph for you. Deadline for December 15th issue: December 4th by mail or 5PM NZST December 5th if by fax to 64-9-406-1083 or Email skyking@clear.net.nz.

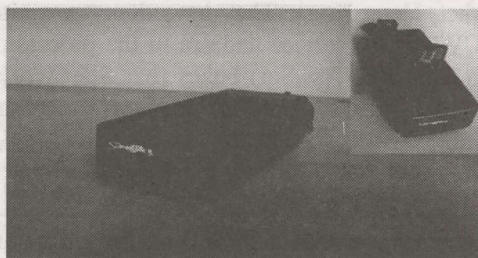
as HK\$3,500 for their IRD, and many are installed in SMATV environments. The last time Star TV did something this major, there was enough of a 'stink' they purchased back the receivers. This time it seems they will not, as well as letting the word out in phases hoping to avoid public outcry. I doubt they will even bother to ask for their CA cards back. In a way, this is the end of an era - Star has nothing to do with satellite TV in their home town!" (RR, HK) "Telecom NZ is testing various potential in-home boxes (I hesitate to call them STBs) which combine the ability to receive Sky NZ satellite service and Telecom delivered VOD (Video On Demand). Sky has begun limited delivery at NZ\$599 of a NDS model PVR, which if one looks at the current products being delivered by pay-TV operators in the UK and USA, is not even 'yesterday's technology' - it is 'day before yesterday'. But by being isolated from the rest of the world, and following the NDS sponsored rollout of PVRs in Australia, who's to know locally that a box that records on hard drive but lacks the ability to do much else is not 'current'? Telecom believes movies on demand, delivered over ADSL 2+ broadband lines, will cut into Sky's near total domination of the New Zealand TV movie market. There is a time frame element here - Sky NZ releases movies as 'first run pay' approximately 30 days after they have been released by Australian pay-TV and Telecom NZ can cut as many as 60 days into Sky release dates with a Movie On Demand offering. The primary weakness here is that decades old failure of any telephone company to properly embrace and market (pay) TV offerings. Telecom spent NZ\$75 million on launching a cable television network in Auckland and abandoned the partially built system 'in place' after failing to create a channel line-up that attracted consumers." (Helen H,

Auckland) "A new major development, Bula Marina (35km south of Nadi), plans a WDM-C fibre network which will combine voice, television and broadband (1310 and 1550nm wavelength trunking). The system will offer residents the latest technology for instant world-wide communications as well as delivery of multiple channels of television. At this time there is no WDM technology functional in New Zealand and Telstra has only created short haul test systems in Australia." (OE, Suva) "Voice Over Internet Protocol (VoIP) users have been aware for some time that unlike traditional telephone networks, they can escape attempts at deliberate monitoring by police or private agencies which have legal or clandestine access to 'normal' telephone links. So along comes a new 'surveillance' technology, tested with the world-popular Skype VoIP service, which now will allow tracking of calls and callers. A unique, undetectable signature in a Skype packet, is the answer. Much like a radioactive marker doctors use to trace movement through a human digestive system, the 'watermark' allows Skype user calls to be tracked and monitored even when using one of the anonymizing devices based upon proxy service. Presently, Skype communicators can conceal their communications with such proxy devices (FindNot.com, Proxy.us and others). Alas, the embedded tracking bits at this stage are only able to identify the two ends of the circuit (who is talking to whom); those using encryption software are still able to conceal their call contents, subject to the skill of the encryption system itself." (David M, Los Angeles) "A new WiFi transmitting/receiving antenna system, developed by Virginia Tech (USA) claims the ability to fill in dead spots in coverage patterns at complex metal and partitioned sites such as airports. The antenna begins as a 'Helix' radiator, is modified

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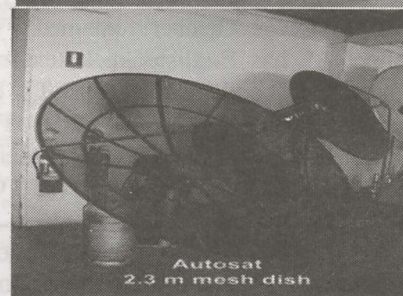
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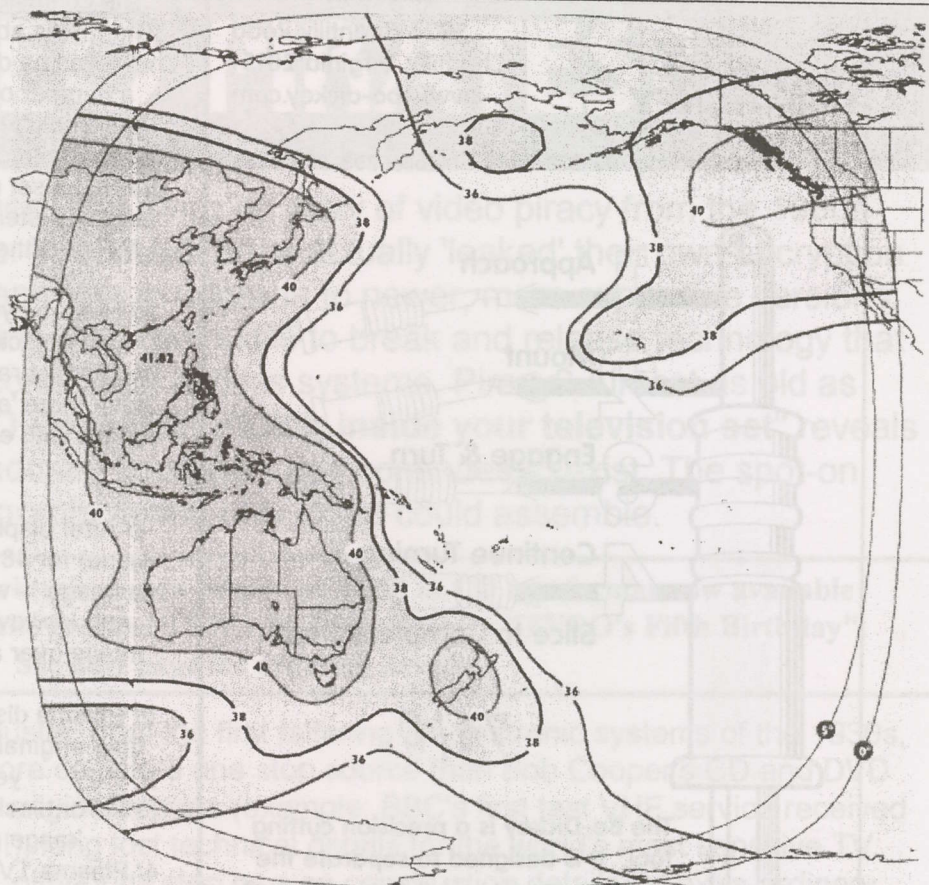
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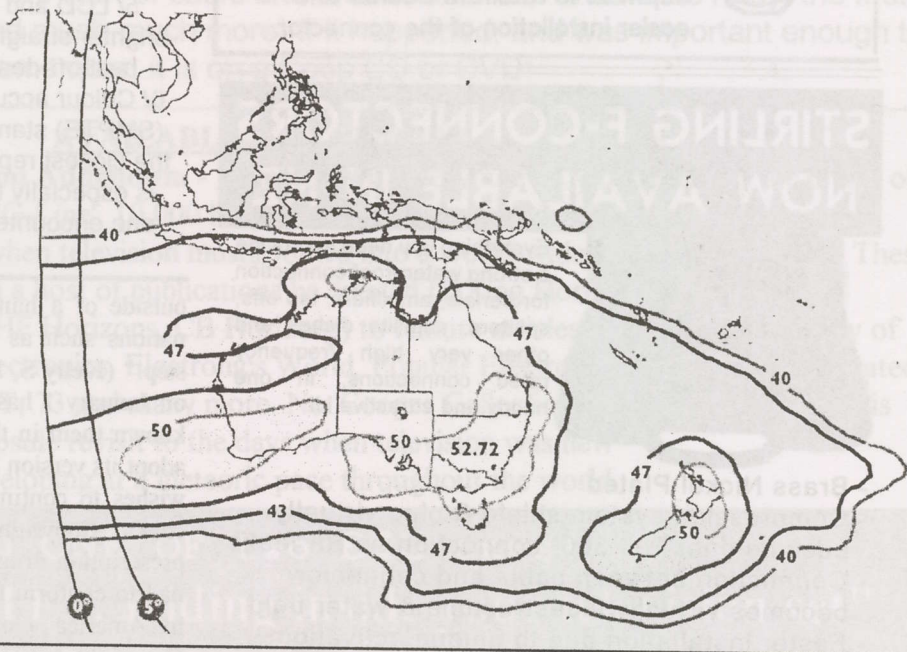
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AMC-23 to 172E Dec 01

SES Americom's newest satellite is likely to play a major role in the next five years of C and Ku band service delivery throughout the full Pacific. By being positioned at 172E, the satellite will have 38-40 dBw C-band footprints into western North America (see right), 40 dBw into New Zealand, all of Australia, north across the equator into Japan and much of China. Impressive. The 80 watt TWTAs are configured as 12 x 36 and 6 x 72 (MHz) with redundancy; a 16 year projected life. On Ku (lower footprint map, right), the of-interest Australia + NZ beam (there are four selectable beams) peak at 52.72 dBw in the vicinity of Sydney, exceed 50 dBw for most of the populated areas of Australia but drop to 47 dBw on a couple of fringes. New Zealand Ku coverage is 50 dBw North Island dropping to 48.5 dBw at southern end of South Island.



with 'hairpin loops' that do two things: (1) Gain for a given physical length is increased, and, (2) the polarity of the transmitted (received) signal becomes variable, near-circular, to take advantage of the reflections from metal support beams and other non-penetrable structures that normally inhibit WiFi coverage. A Mason City, Iowa firm is now manufacturing the antennas (FRC Corp) and expects to turn out a million of the (2.4 GHz device in the first 12 months." (Raymond T) "Remember when analogue composite connections gave way to S-video, which in turn gave way to analogue component, followed by DVI and more recently HDMI?



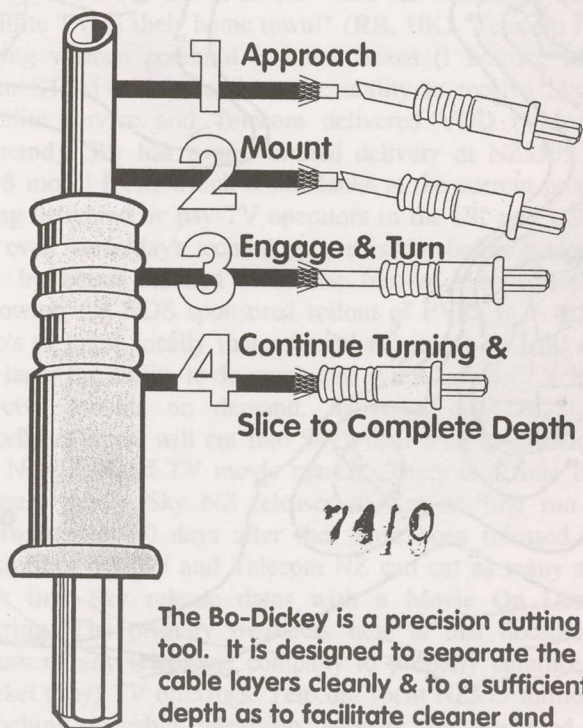
Now, get ready for the latest standard; DisplayPort, capable of connecting devices at speeds up to 10.8 Gbps. The new connection standards are backed by virtually all major firms in the CE/PC business and is supposed to reduce the number of individual wires required to interconnect PCs to LCD displays." (Trendy) "A test of various formats of display systems, using 5,000 hours as a test period, reveals that Plasma displays decrease output levels by 5.5%, LCD displays lose 11.2% and microdisplay projectors lose 22.8%. In the USA, LCD models, 32" size, are now outselling Plasma and 37" screen size will be next to see LCD take the sales lead. World-wide, however, outside of North America, Plasma

sales continue to outpace rear-projection sets while CRT sales have dropped to 84% of 'all markets' from 92% market share in 2004." (Edward T, New York) (Editor's note: See separate evaluation here on p. 30) "So much for competition. PanAmSat has sold its full fleet of satellites, earth stations and attachments to Intelsat. This is not the 'original' Intelsat - rather it is the privately owned firm that went from consortium owned by 100+ nations to privately owned in the past 12 months. The selling price, which seems like a bargain, is US\$3.2 billion in cash and Intelsat assumption of another US\$3.2 billion in PanAmSat debt. So now there is a 'combined fleet' of 53 satellites, essentially all there are



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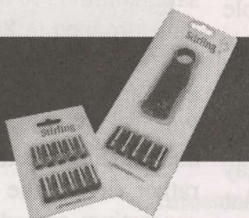


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The confusion behind purchasing a new TV receiver
The myths abound - mostly warning savvy buyers that new Plasma design TVs are a 'dangerous purchase' for a number of reasons. But are those myths valid or simply fed on Internet by people who lack the resources to come to a proper conclusion. IDC and ISF created a set of rigorous tests to evaluate how different display systems really degrade. Here are some 'facts':

1/ Red is the most susceptible colour to degradation over time

2/ Human eyes react with less pleasure to changes in black level (or grey) than white levels

3/ Contrast ratios, dependent upon black versus white, have more 'eye appeal' when blacker than whiter and images with excessive blacks actually 'look better' than with excessive whites

The Plasma myths

1/ After displaying a static image (such as stuck on a menu) for 48 hours, Plasma sets tested had a 'burned in image' - while LCD or MD rear projection sets did not. However, after a 48 hour 'refresh' (run a DVD movie over and over 48 hours), the imprinted image typically does go away.

2/ Plasma displays appear to lose no more than 5% of their original image quality after the equivalent of 20 years of use at 8 hours per day.

3/ For black levels, Plasma TVs retained a deeper 'range of colours' after accelerated testing

4/ Plasma TVs have the best 'angle of viewing capture' image of LCD and rear screen projection.

5/ LCD and microdisplay (projection) sets have a brighter straight-ahead image, but the Plasma has the best off-dead-centre viewing brilliance and detail

6/ Colour accuracy, based upon Hollywood standards (SMPTE) standards show the Plasma displays create the closest replications of original tints and tones. This is especially true at low-light-level displays (such as one encounters in many movies shot in darkness or reduced light).

outside of a handful owned by firms such as AsiaSat and nations such as Russia. Competition just took a backward step!" (Kelly S, Dallas) "Australia proposal that became law on January 1 has changed the rules of copyright as we have known them in the Pacific. The US is demanding that allies adopt its version of many laws if a country, such as Australia, wishes to continue to have lucrative export trade with the yanks. Copyright is very broad - affecting for example prescription drugs. From January 1, drug prices in Australia had to conform to (foreign exchange adjusted) selling prices in America - or else. The US 1998 Digital Millennium Copyright Act is now routinely written into trade agreements between the US and its allies. Australia was considering an extension from 50 to 70 years extensions of copyrights when Parliament urged that not be done. However, when Australia's new regulations went into effect last January, there it was - a 70 year extension that Parliament had turned down. Now the US wants to extend that to 95 years, which would protect Mickey Mouse from copiers until 2033. Australia is a 'net importer' of products deriving from copyrighted (US) creations. One observer noted, 'The US is steam rolling the world with these demands - without regard to how this affects home-grown creative industries'." (Slamming Sam)

VIDEO PIRATES?

Names, dates, techniques - the amazing story of video piracy from the 1960s onward. And the surprises: How major firms actually 'leaked' their own encryption technology to force programmers to upgrade to newer, more expensive versions. And the programmers using their own skills to break and release technology that attacked competitor's conditional access systems. Piracy? Almost as old as television itself and **"VIDEO PIRATES: Hiding inside your television set"** reveals how this grey market industry flourished and continues to exist. The spot-on techno-biography which only Coop could assemble.

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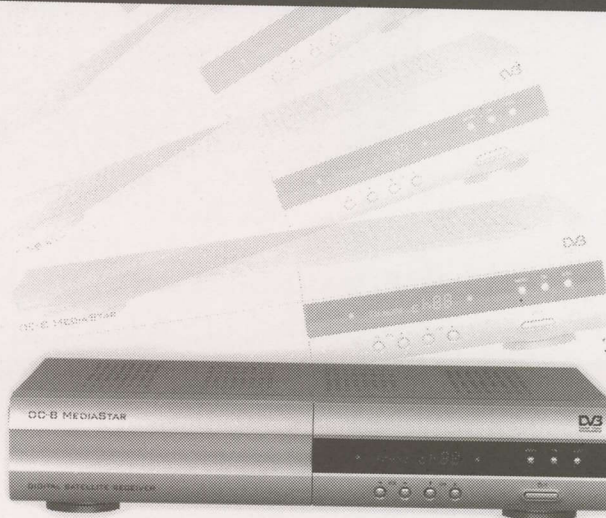
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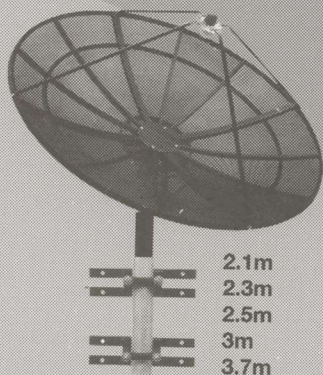
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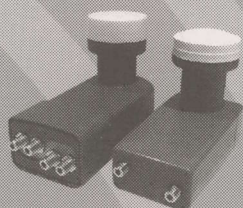


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